

Lab10 - Prometheus

Adding prometheus and grafana to docker-compose

1. Clone the following repository :

git clone <https://github.com/brahimhamdi/dockercoins-monitoring>

```
brahim@Training:/tmp$ git clone https://github.com/brahimhamdi/dockercoins-monitoring
Clonage dans 'dockercoins-monitoring'...

remote: Enumerating objects: 38, done.
remote: Counting objects: 100% (38/38), done.
remote: Compressing objects: 100% (32/32), done.

remote: Total 38 (delta 10), reused 34 (delta 6), pack-reused 0
Réception d'objets: 100% (38/38), 145.51 Kio | 380.00 Kio/s, fait.
Résolution des deltas: 100% (10/10), fait.
brahim@Training:/tmp$
brahim@Training:/tmp$
brahim@Training:/tmp$
brahim@Training:/tmp$ cd dockercoins-monitoring/
brahim@Training:/tmp/dockercoins-monitoring$ tree
.
├── docker-compose.yml
├── hasher
│   ├── Dockerfile
│   └── hasher.rb
├── Lab10_prometheus.pdf
├── prometheus.yml
├── rng
│   ├── Dockerfile
│   └── rng.py
├── webui
│   ├── files
│   │   ├── d3.min.js
│   │   ├── index.html
│   │   ├── jquery-1.11.3.min.js
│   │   ├── jquery.js
│   │   ├── rickshaw.min.css
│   │   └── rickshaw.min.js
│   └── webui.js
└── worker
    ├── Dockerfile
    └── worker.py

5 directories, 16 files
brahim@Training:/tmp/dockercoins-monitoring$
```

2. Describe the dockercompose.yml file.

En plus des services de l'application (worker, webui, rng, hasher, redis), il y a 3 autres services :

- *prometheus* : Collecter les métriques

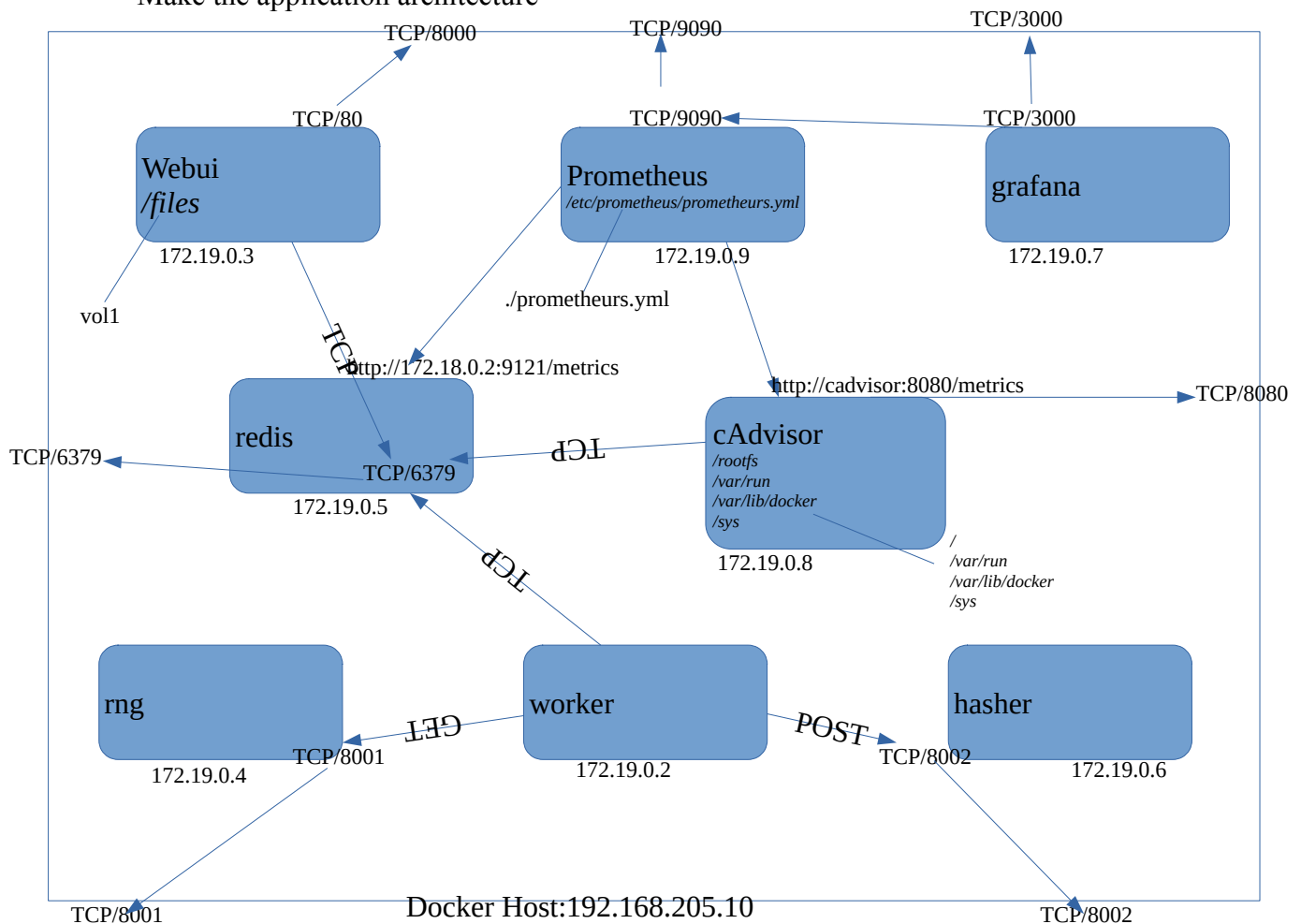
- *cAdvisor* : Exporter les métriques des conteneurs (node exporter)

- *Grafana* : Dashboarding

- What cadvisor service do ?

Collecter et exporter les métriques de tous les conteneurs de l'hôte

- Make the application architecture



Deploy application

3. Using docker-compose create and start services

docker-compose up -d --build

```
brahim@Training:/tmp/dockercoins-monitoring$ docker-compose ps
```

Name	Command	State	Ports
cadvisor	/usr/bin/cadvisor -logtostderr	Up (health: starting)	0.0.0.0:8080->8080/tcp, :::8080->8080/tcp
dockercoins-monitoring_hasher_1	ruby hasher.rb	Up (unhealthy)	0.0.0.0:8002->8002/tcp, :::8002->8002/tcp
dockercoins-monitoring_rng_1	python rng.py	Up	0.0.0.0:8001->8001/tcp, :::8001->8001/tcp
dockercoins-monitoring_webui_1	node webui.js	Up	0.0.0.0:8000->80/tcp, :::8000->80/tcp
dockercoins-monitoring_worker_1	python worker.py	Up	
grafana	/run.sh	Up	0.0.0.0:3000->3000/tcp, :::3000->3000/tcp
prometheus	/bin/prometheus --config.f ...	Up	0.0.0.0:9090->9090/tcp, :::9090->9090/tcp
redis	docker-entrypoint.sh redis ...	Up	6379/tcp

```
brahim@Training:/tmp/dockercoins-monitoring$
```

- Test the dockercoins application using web browser

<http://192.168.205.100:8000>

DockerCoin Miner WebUI

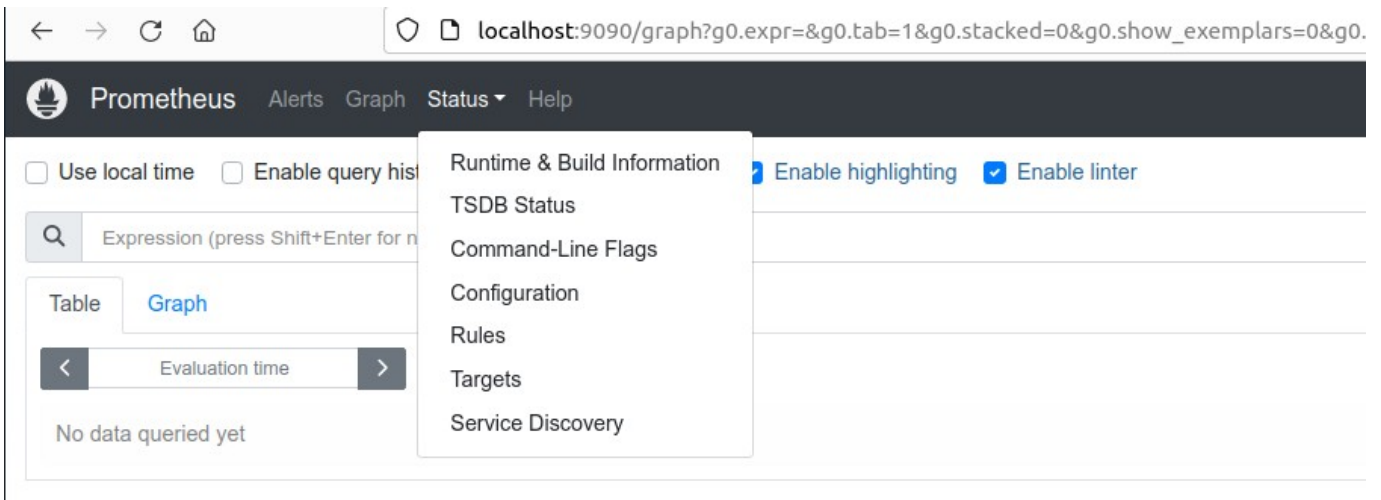
Current mining speed: ~4.0 hashes/second ([Tweet this!](#))

Configuring prometheus

4. Open prometheus dashboard (via container and localhost)

- What is the URL ?

<http://192.168.205.100:9090>



- By default, what container is monitored by prometheus ?

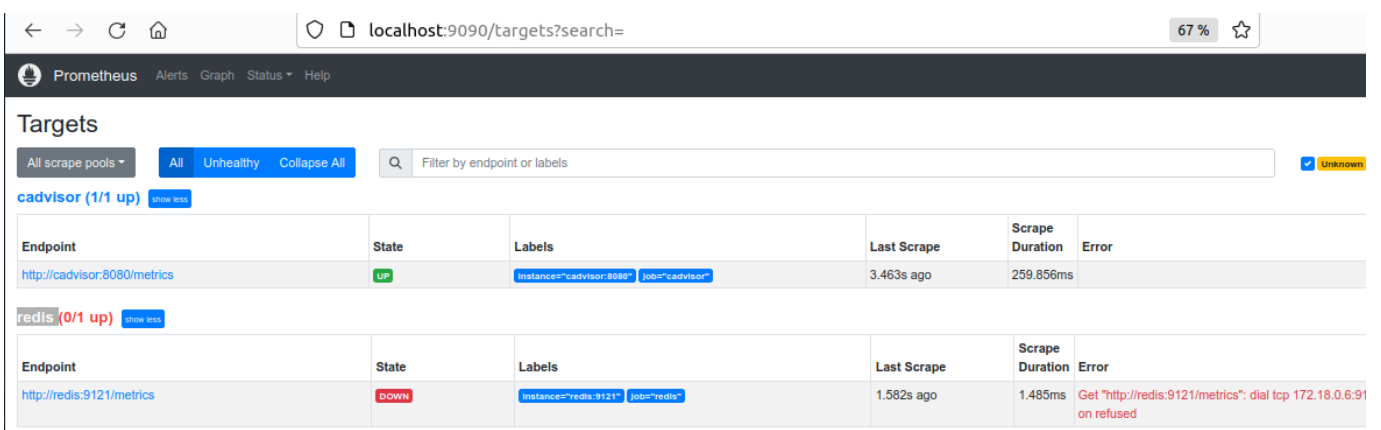
Prometheus container

- What is the path of prometheus configuration file ?

/etc/prometheus/prometheus.yml

5. Display targets on prometheus dashboard.

<http://192.168.205.100:9090/targets>



- What metrics are collected ?

cadvisor collecte les métriques de l'OS (node exporter)

- Is redis metrics collected ? If no, add job to prometheus to do that.

Non, Installer et lancer redis_exporter sous le conteneur redis :

wget https://raw.githubusercontent.com/brahirhamdi/redis_exporter/master/redis_exporter

chmod +x redis_exporter

./redis_exporter &

```

brahim@Training:/tmp/dockercoins-monitoring$ docker-compose exec redis bash
root@a6817db0fd5e:/data# wget https://raw.githubusercontent.com/brahimhamdi/redis_exporter/master/redis_exporter
--2023-06-20 13:03:29-- https://raw.githubusercontent.com/brahimhamdi/redis_exporter/master/redis_exporter
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.108.133, 185.199.109.133, 185.199.110.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.108.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 8437760 (8.0M) [application/octet-stream]
Saving to: 'redis_exporter'

redis_exporter          100%[=====>]      8.05M   582KB/s   in 10s

2023-06-20 13:03:41 (803 KB/s) - 'redis_exporter' saved [8437760/8437760]

root@a6817db0fd5e:/data# chmod +x redis_exporter
root@a6817db0fd5e:/data# ./redis_exporter &
[1] 2636
root@a6817db0fd5e:/data# INFO[0000] Redis Metrics Exporter v1.23.1    build date: 2021-05-06-12:09:53    sha1: 0f480a3eb499b9c015fb151ca54f55
3731ba7e7    Go: go1.16.3    GOOS: linux    GOARCH: amd64
INFO[0000] Providing metrics at :9121/metrics

root@a6817db0fd5e:/data#

```

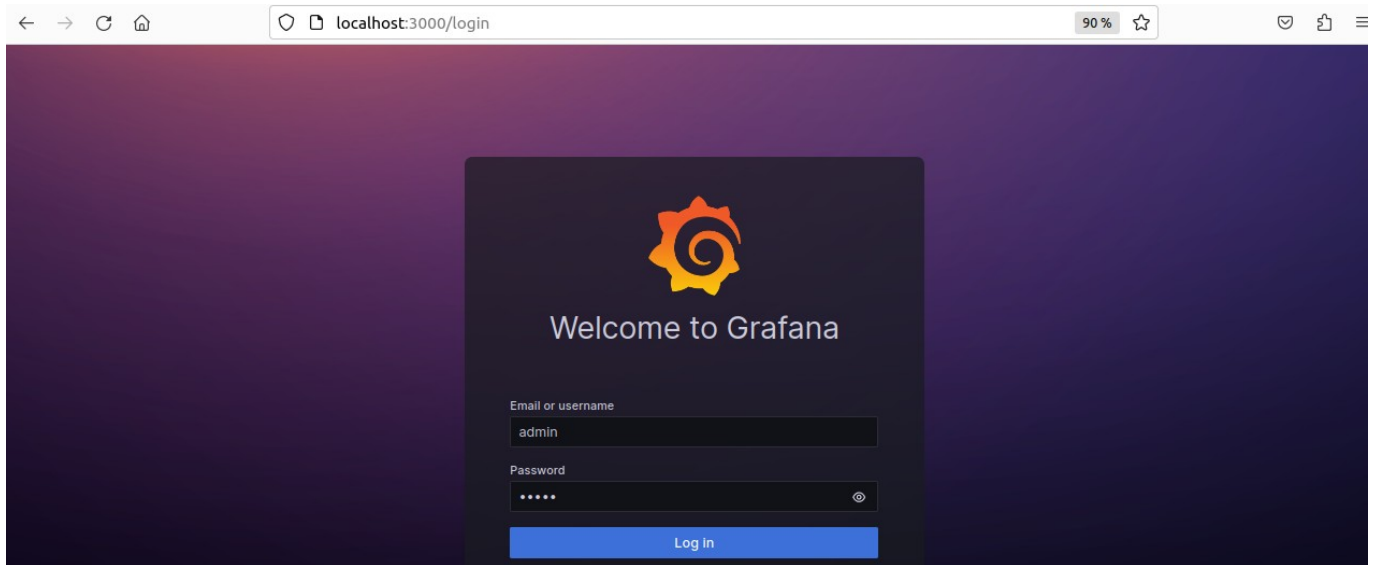
The screenshot shows the Prometheus web interface. At the top, there's a navigation bar with 'Prometheus', 'Alerts', 'Graph', 'Status', and 'Help'. Below this, the 'Targets' section is active. It features a search bar and filters for 'All', 'Unhealthy', and 'Collapse All'. There are also status indicators for 'Unknown', 'Unhealthy', and 'Health'. Two target groups are listed: 'cadvisor (1/1 up)' and 'redis (1/1 up)'. Each group has a 'show less' link. The 'cadvisor' group contains one target with endpoint 'http://cadvisor:8080/metrics', state 'UP', labels 'instance="cadvisor:8080"' and 'job="cadvisor"', last scrape '4.228s ago', and scrape duration '342.118ms'. The 'redis' group contains one target with endpoint 'http://redis:9121/metrics', state 'UP', labels 'instance="redis:9121"' and 'job="redis"', last scrape '2.347s ago', and scrape duration '7.403ms'.

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://cadvisor:8080/metrics	UP	instance="cadvisor:8080" job="cadvisor"	4.228s ago	342.118ms	
http://redis:9121/metrics	UP	instance="redis:9121" job="redis"	2.347s ago	7.403ms	

Configuring grafana

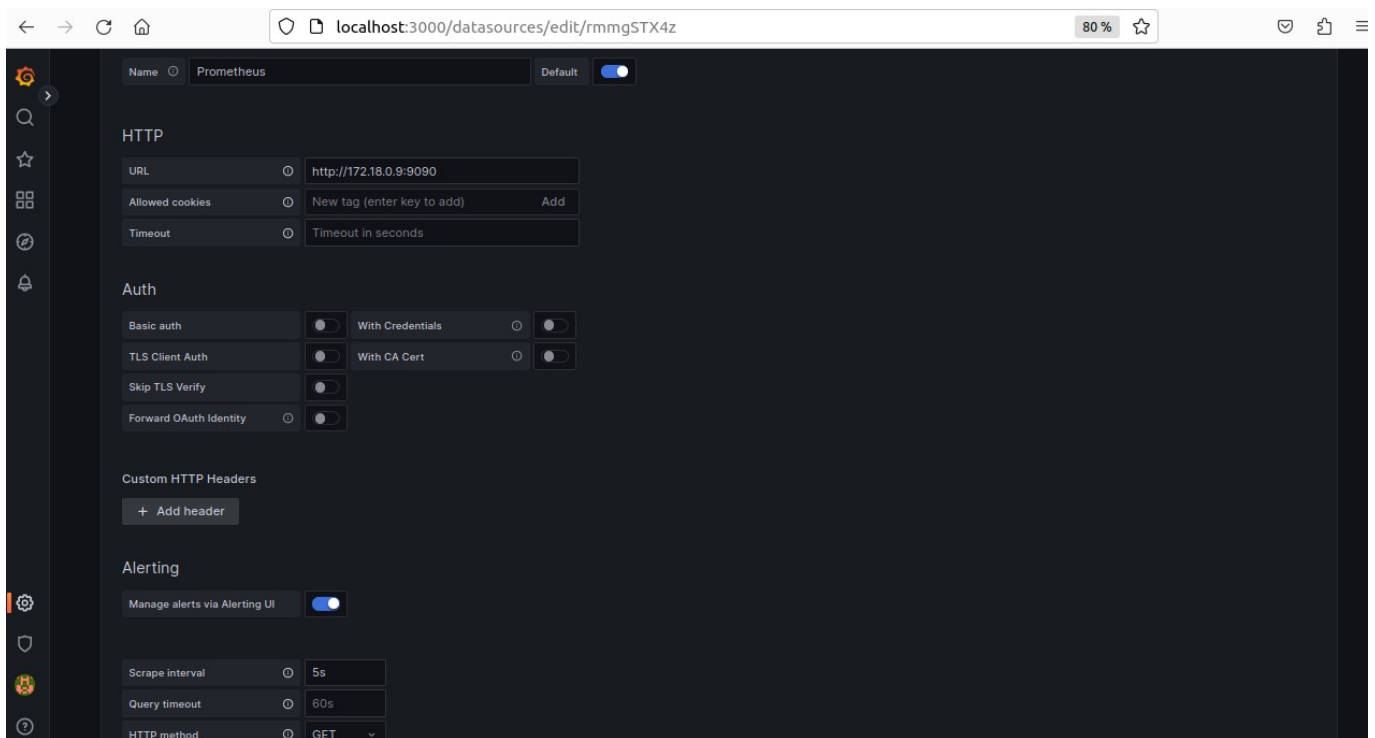
- Open the dashboard of grafana.

http://192.168.205.100:3000



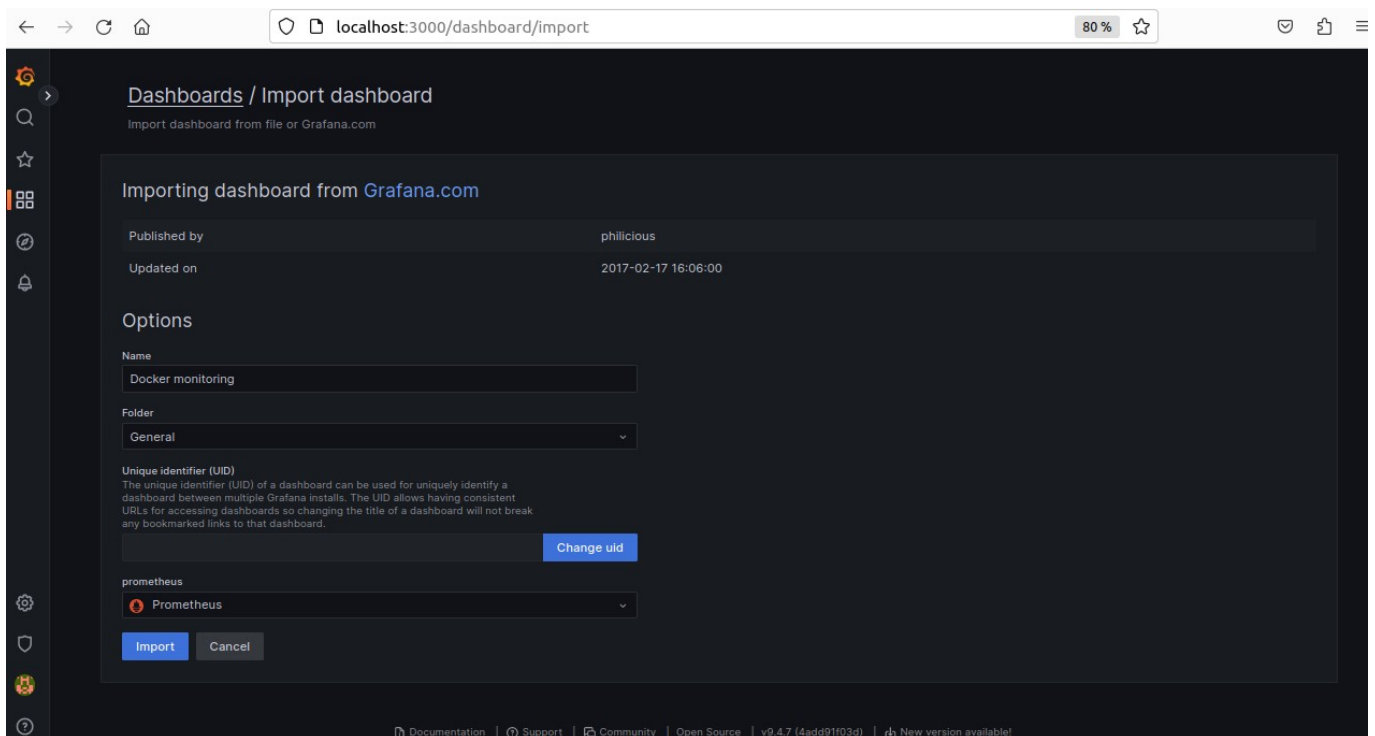
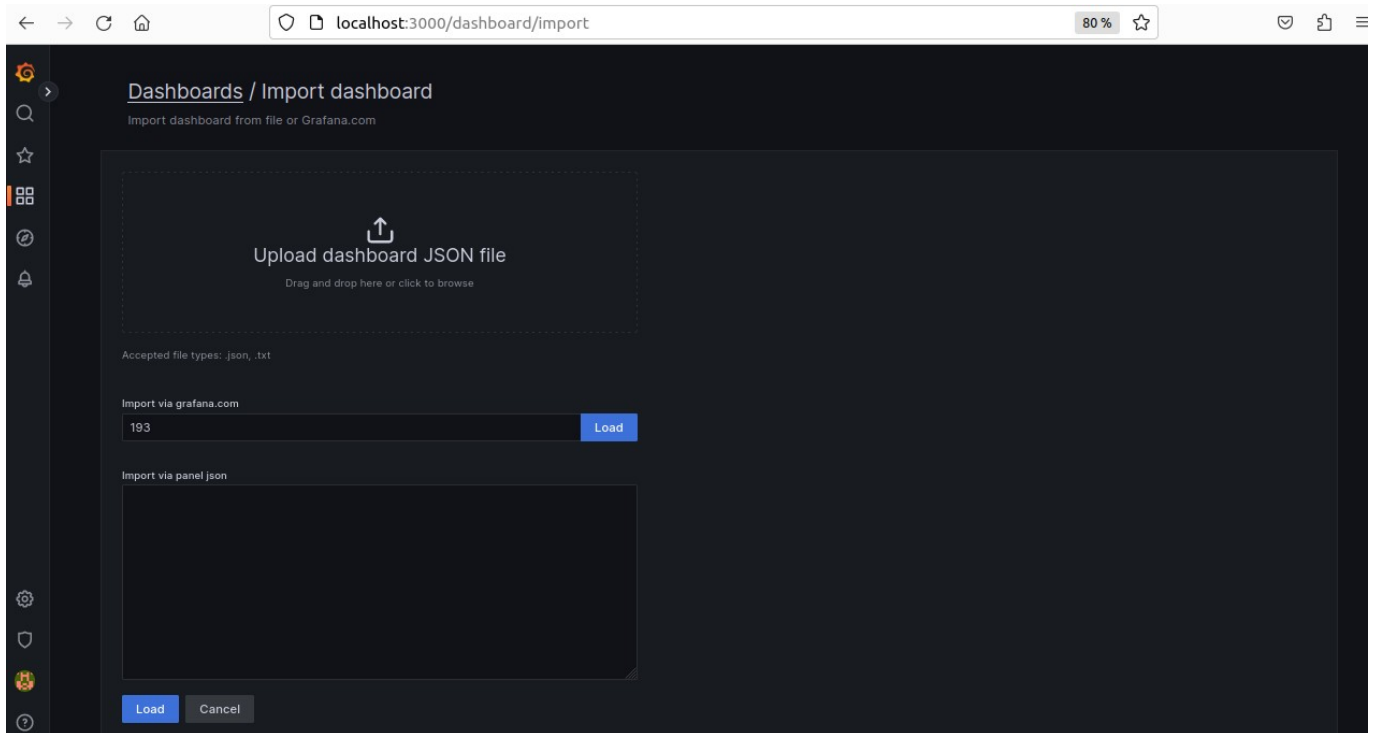
7. Add the prometheus data source to grafana.

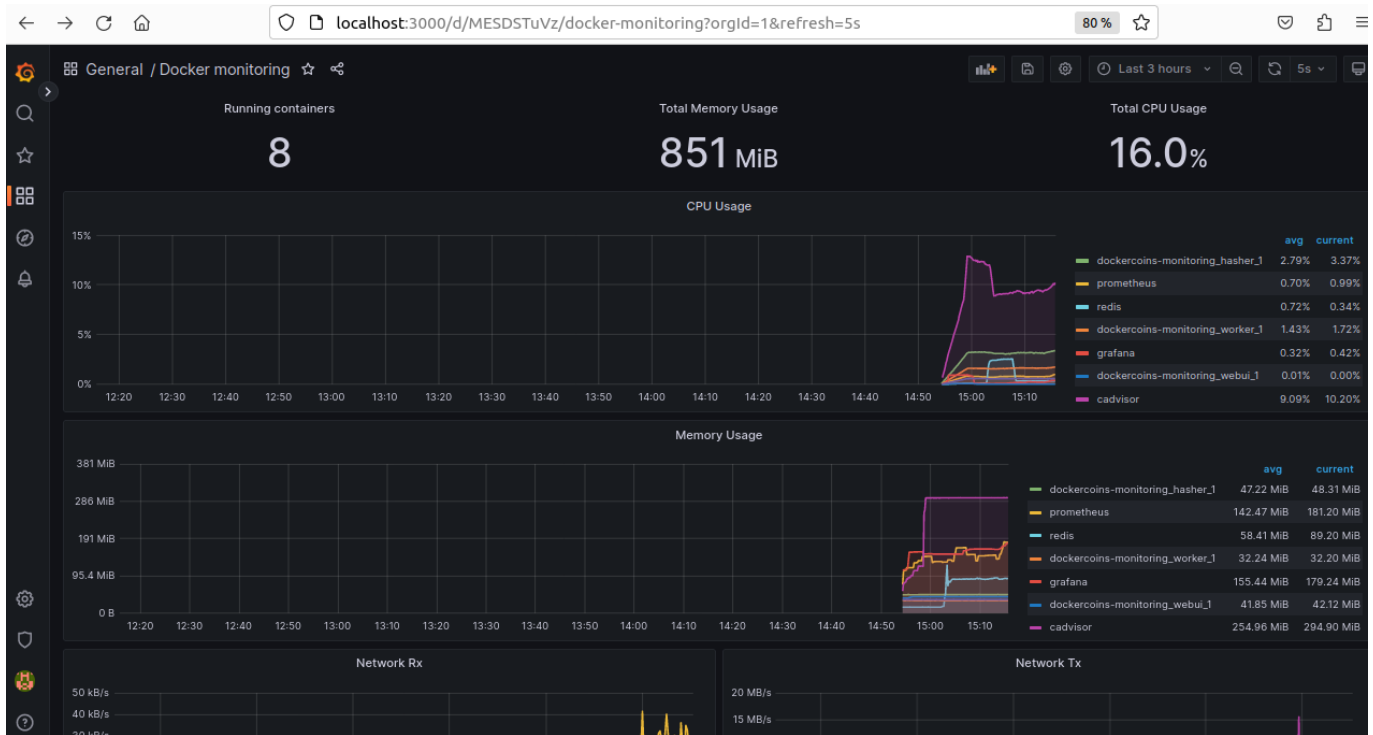
<http://172.19.0.9:9090>



- Add grafana dashboard to every prometheus scraping job.

ID Dashboard cAdvisor : 193





ID Dashboard redis : 763

