

# Module 1: Monitoring using Prometheus and Grafana

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Demo Document - 1

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## Demo – 1: Monitoring a Docker Service using Prometheus

We will use cAdvisor in this demo to collect the container metrics

- Create a Docker service for cAdvisor and redis

Syntax: vi compose.yml

```
version: '3.2'
services:
  cadvisor:
    image: gcr.io/cadvisor/cadvisor:latest
    container_name: cadvisor
    ports:
      - 8087:8080
    volumes:
      - /:/rootfs:ro
      - /var/run:/var/run:rw
      - /sys:/sys:ro
      - /var/lib/docker/:/var/lib/docker:ro
    depends_on:
      - redis
  redis:
    image: redis:latest
    container_name: redis
    ports:
      - 6379:6379
```

- Now, add cAdvisor as one of your targets in your Prometheus.yml config file

Syntax: `sudo vi /opt/prometheus-2.27/prometheus.yml`

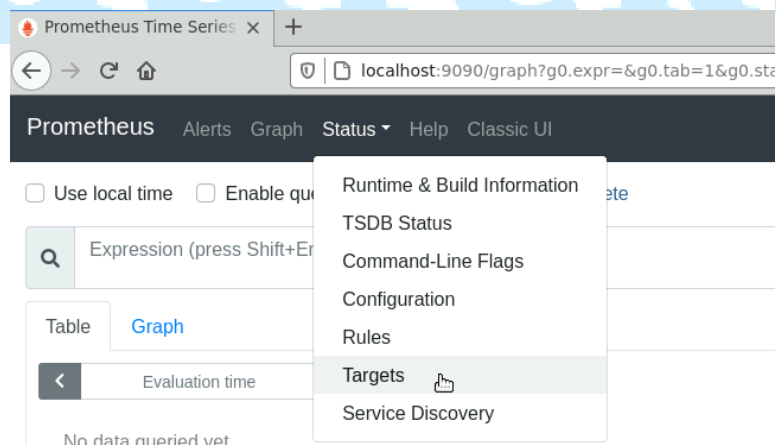
```
- job_name: 'cAdvisor'
  scrape_interval: 5s
  static_configs:
    - targets: ['localhost:8087']
```

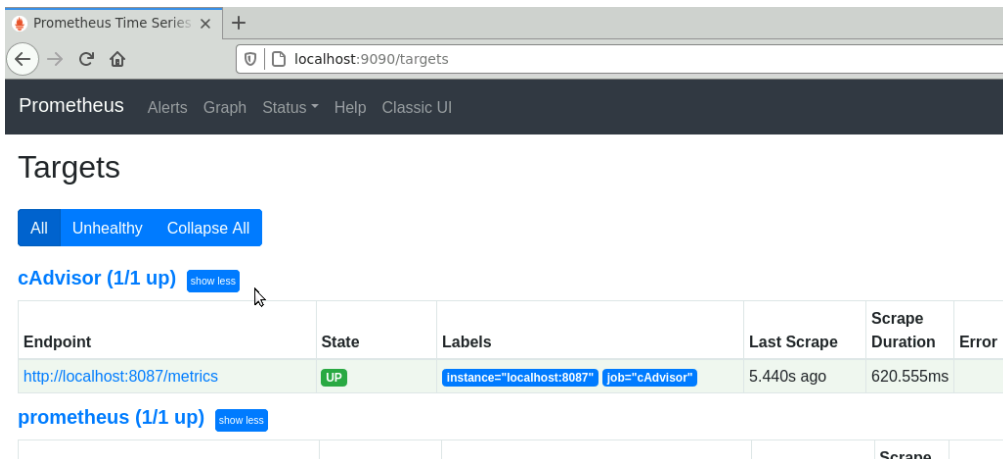
- Restart the Prometheus service

Syntax: `sudo systemctl restart prometheus.service`

- Now, we can check if the new target is live on our Prometheus dashboard by opening the dashboard and checking targets

To open the dashboard go to: `localhost:9090`



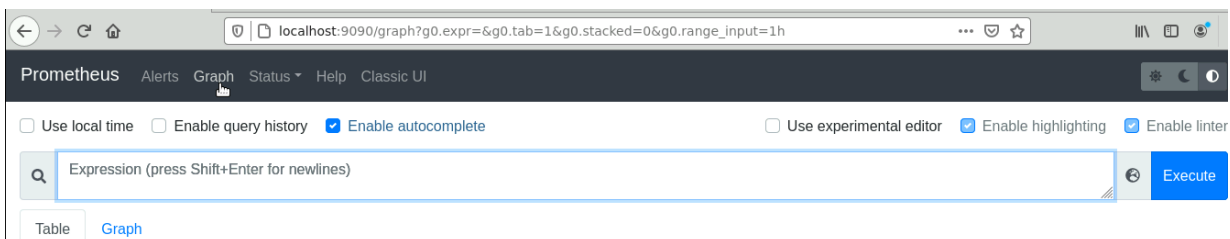


The screenshot shows the Prometheus 'Targets' page. At the top, there are tabs for 'All', 'Unhealthy', and 'Collapse All'. Below these, there are two sections: 'cAdvisor (1/1 up)' and 'prometheus (1/1 up)'. The 'cAdvisor' section contains a table with the following data:

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
<a href="http://localhost:8087/metrics">http://localhost:8087/metrics</a>	UP	instance="localhost:8087" job="cAdvisor"	5.440s ago	620.555ms	

The 'prometheus' section is currently empty.

- We can check the different metrics in graphical format using the graph tab



The screenshot shows the Prometheus 'Graph' tab. The URL bar contains the query: `localhost:9090/graph?g0.expr=&g0.tab=1&g0.stacked=0&g0.range_input=1h`. The search bar contains the text 'Expression (press Shift+Enter for newlines)'. The 'Execute' button is visible on the right. The 'Table' and 'Graph' tabs are at the bottom, with 'Graph' being the active tab.

Add some cadvisor expression like memory usage by containers to check the total memory usage

