

Module 10: Monitoring using Prometheus and Grafana

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Demo – 1: Monitoring a Docker Service using Prometheus

- 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`

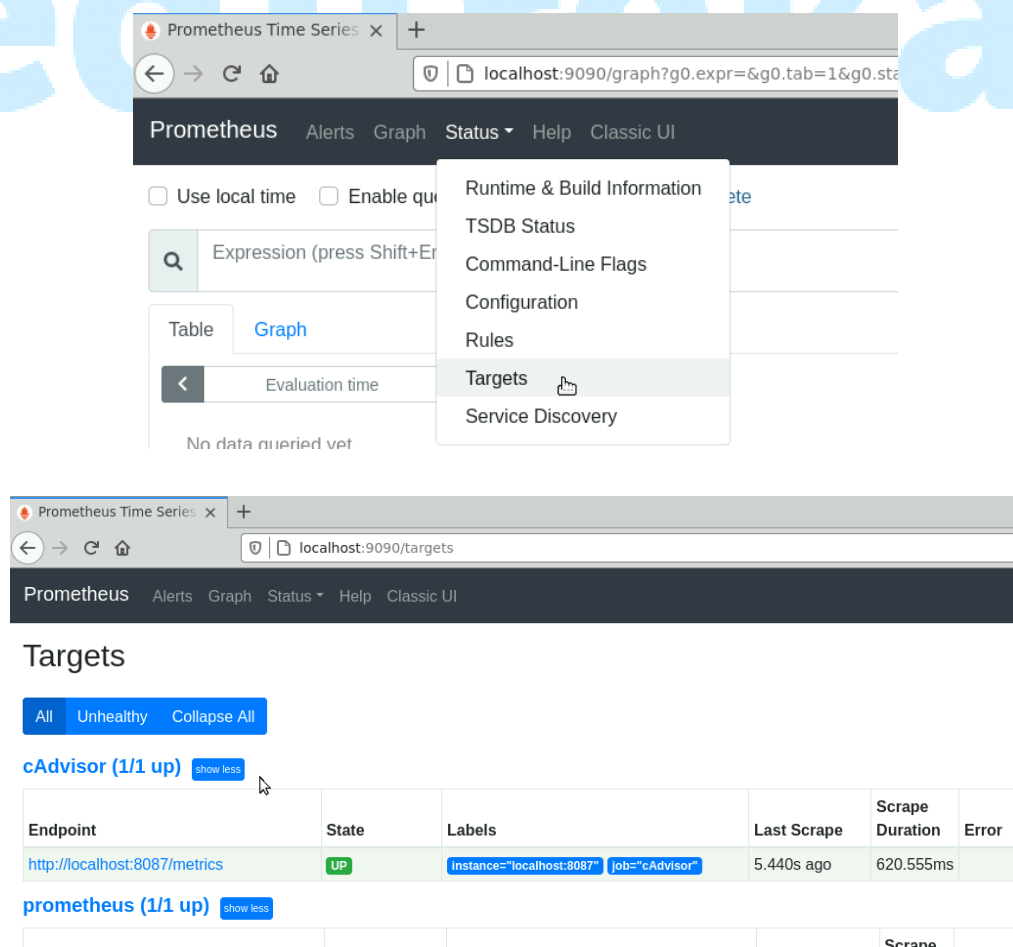
```
- job_name: 'cAdvisor'
  scrape_interval: 5s
  static_configs:
    - targets: ['localhost:8087']
```

- 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

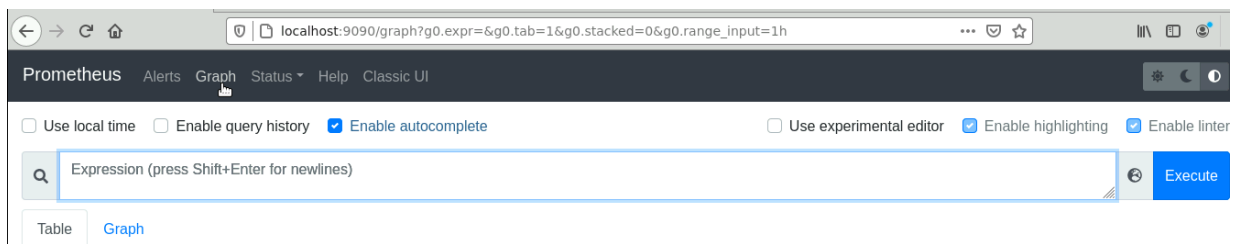
To open the dashboard go to: localhost:9090



The screenshot shows the Prometheus web interface. The top navigation bar includes 'Prometheus', 'Alerts', 'Graph', 'Status', 'Help', and 'Classic UI'. A dropdown menu is open, showing options like 'Runtime & Build Information', 'TSDB Status', 'Command-Line Flags', 'Configuration', 'Rules', 'Targets', and 'Service Discovery'. The 'Targets' page is displayed, showing a table of targets. The table has columns for 'Endpoint', 'State', 'Labels', 'Last Scrape', 'Scrape Duration', and 'Error'. The 'cAdvisor' target is listed with the endpoint 'http://localhost:8087/metrics', state 'UP', and labels 'instance="localhost:8087"' and 'job="cAdvisor"'. The 'prometheus' target is also listed with the endpoint 'http://localhost:9090/metrics' and state 'UP'.

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://localhost:8087/metrics	UP	instance="localhost:8087" job="cAdvisor"	5.440s ago	620.555ms	
http://localhost:9090/metrics	UP	instance="localhost:9090" job="prometheus"			

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



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

