Working with minikube and Nagios

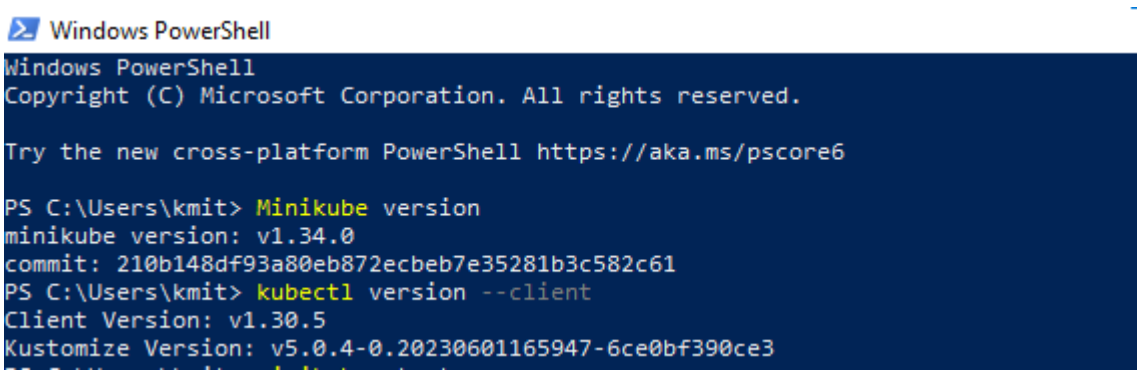
Interact with Minikube

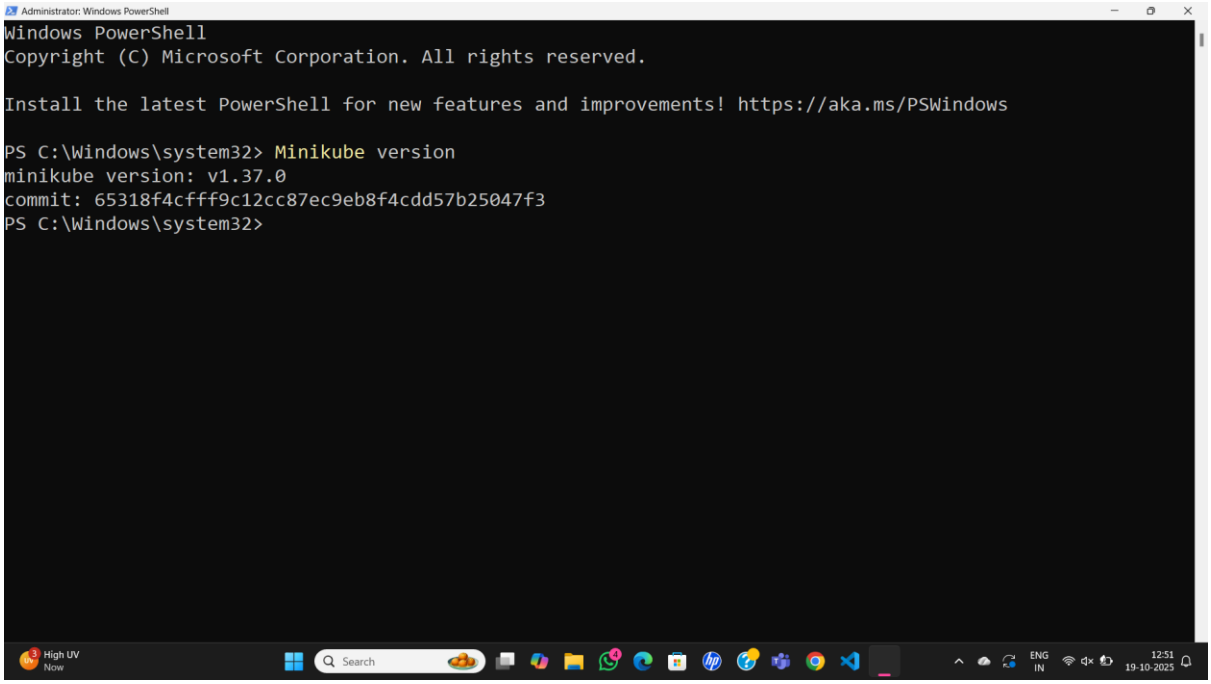
kubectl is a command-line tool used in Kubernetes to interact with and manage Kubernetes clusters.

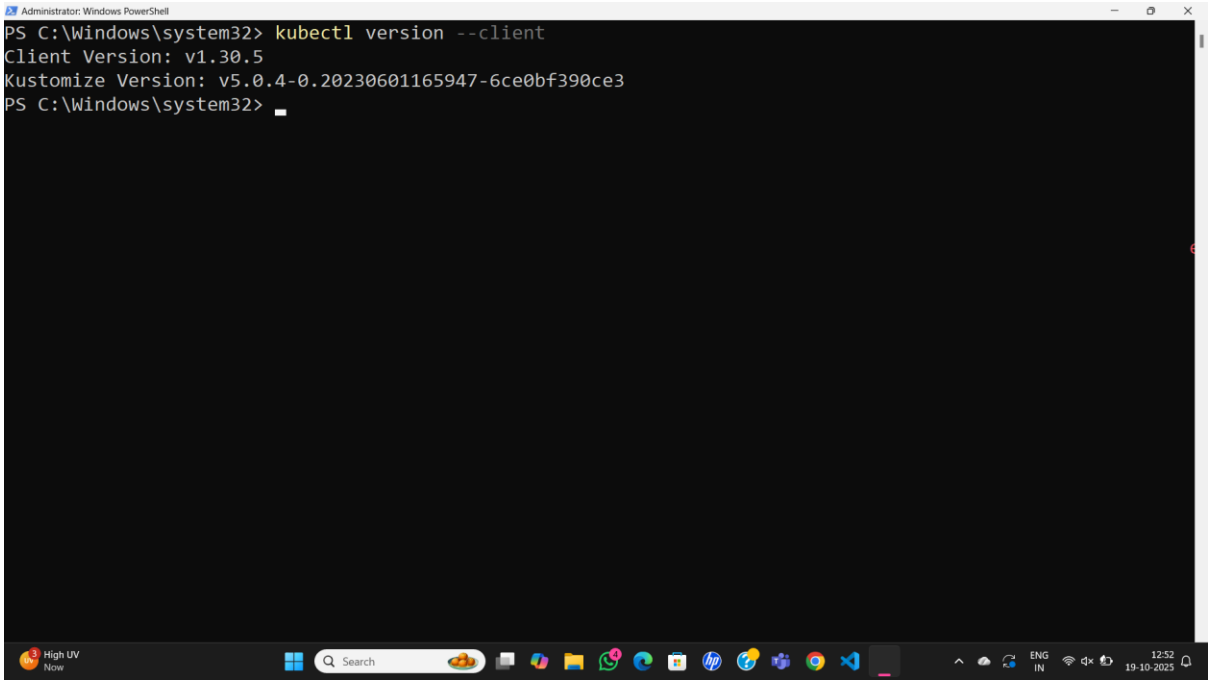
Once Minikube is running:

Minikube version

kubectl version --client





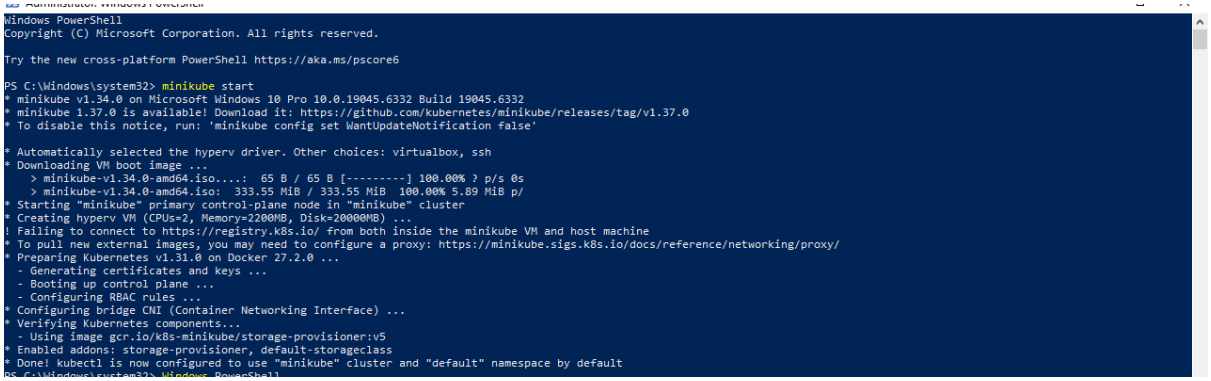


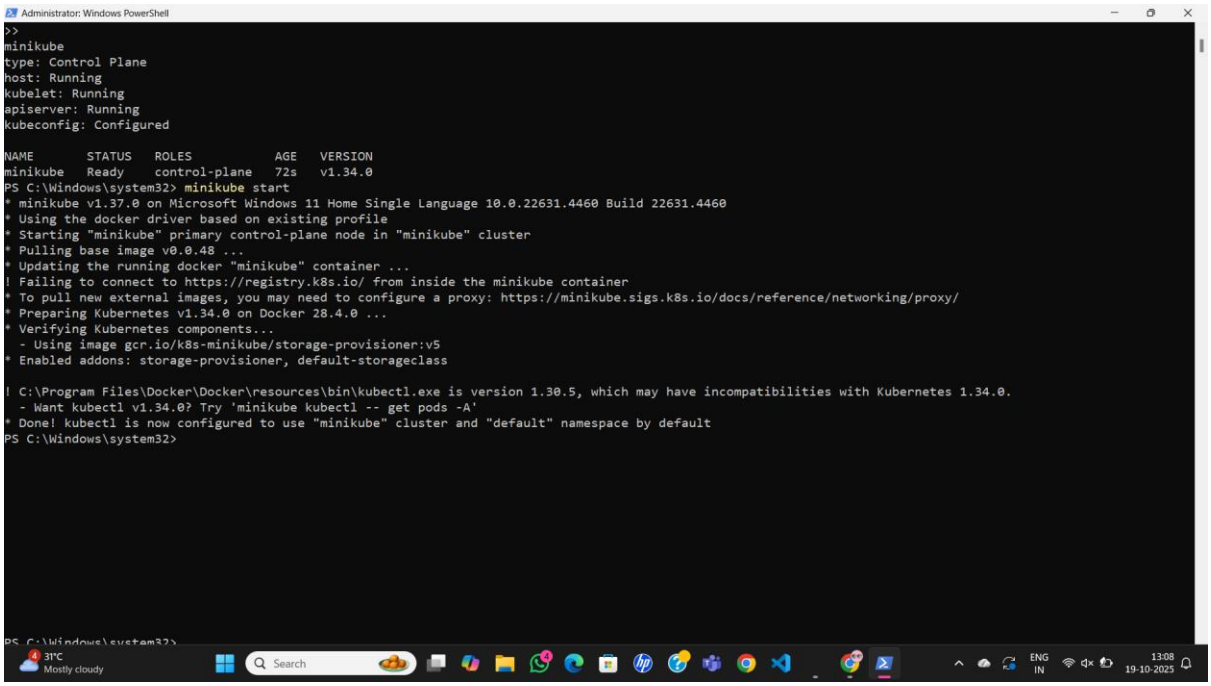
Minikube Automation Steps

Step 1: Start Minikube Cluster

- Open your terminal and run the command:

minikube start





Step 2: Create and Manage Deployment

1. **create_application**

    - Command:

      ```
      kubectl create deployment mynginx --image=nginx
      ```

    - Verify the deployment using: Kubernetes responds by showing you a list that includes the names of your deployment groups

      ```
      kubectl get deployments
      ```

```
PS C:\Windows\system32>
PS C:\Windows\system32> kubectl create deployment mynginx --image=nginx
deployment.apps/mynginx created
PS C:\Windows\system32> kubectl get deployments
NAME      READY   UP-TO-DATE   AVAILABLE   AGE
mynginx   1/1     1            1           59s
PS C:\Windows\system32> kubectl expose deployment mynginx --type=NodePort --port=80 --target-port=80
service/mynginx exposed
```

- kubectl get pods
- kubectl describe pods

```
PS C:\Users\kmit>  kubectl get pods
NAME                         READY   STATUS    RESTARTS   AGE
mynginx-79bb8756c7-628nl   1/1     Running   0          60s
PS C:\Users\kmit>  kubectl describe pods
Name:             mynginx-79bb8756c7-628nl
Namespace:        default
Priority:         0
Service Account:  default
Node:             minikube/192.168.49.2
Start Time:       Tue, 14 Oct 2025 11:14:19 +0530
Labels:           app=mynginx
                  pod-template-hash=79bb8756c7
Annotations:      <none>
Status:           Running
IP:               10.244.0.6
IPs:
  IP:           10.244.0.6
Controlled By:  ReplicaSet/mynginx-79bb8756c7
Containers:
  nginx:
    Container ID:   docker://005cbc65a23c07baffb6d0918f5d984ec64526aafbf7cecdd1abb50b86c26766
    Image:          nginx
    Image ID:       docker-pullable://nginx@sha256:3b7732505933ca591ce4a6d860cb713ad96a3176b82f7979a8dfa9973486a0d6
    Port:           <none>
    Host Port:      <none>
    State:          Running
      Started:      Tue, 14 Oct 2025 11:14:56 +0530
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-9rg79 (ro)
Conditions:
  Type                        Status
  PodReadyToStartContainers   True
  Initialized                 True
  Ready                       True
  ContainersReady             True
  PodScheduled                True
Volumes:
  kube-api-access-9rg79:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
    ConfigMapName:           kube-root-ca.crt
    ConfigMapOptional:       <nil>
    DownwardAPI:             true
QoS Class:                   BestEffort
Node-Selectors:              <none>
```

```
Volumes:
  kube-api-access-9rg79:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
    ConfigMapName:           kube-root-ca.crt
    ConfigMapOptional:       <nil>
    DownwardAPI:             true
QoS Class:                   BestEffort
Node-Selectors:              <none>
Tolerations:                 node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
                             node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
  Type    Reason     Age   From               Message
  ----    ------     ----  ----               -------
  Normal  Scheduled  80s   default-scheduler  Successfully assigned default/mynginx-79bb8756c7-628nl to minikube
  Normal  Pulling    78s   kubelet            Pulling image "nginx"
  Normal  Pulled     44s   kubelet            Successfully pulled image "nginx" in 33.289s (33.291s including waiting). Image size: 159974475 bytes.
  Normal  Created    43s   kubelet            Created container nginx
  Normal  Started    43s   kubelet            Started container nginx
```

2. **Expose Deployment as a Service**:
    - Command:

```
kubectl expose deployment mynginx --type=NodePort --port=80 --
target-port=80
```

Step 3: Scale the Deployment

Command:Scales the Nginx deployment to 4 replicas (pods).

```
kubectl scale deployment mynginx --replicas=4
```

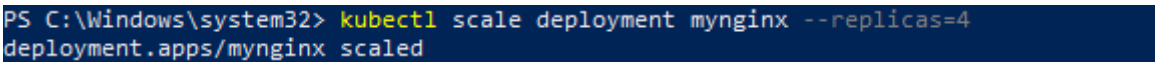
```
kubectl get service myngnix
```

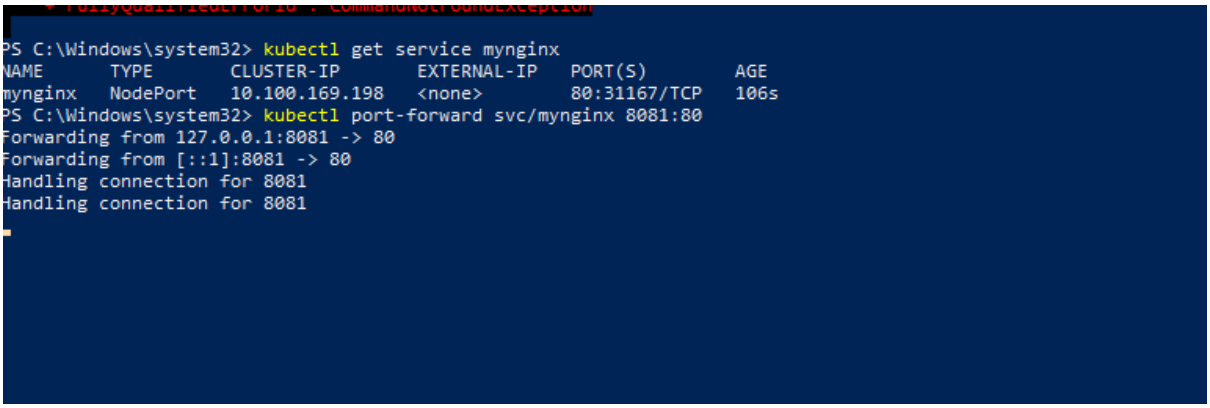
Step 4: Access the Nginx App

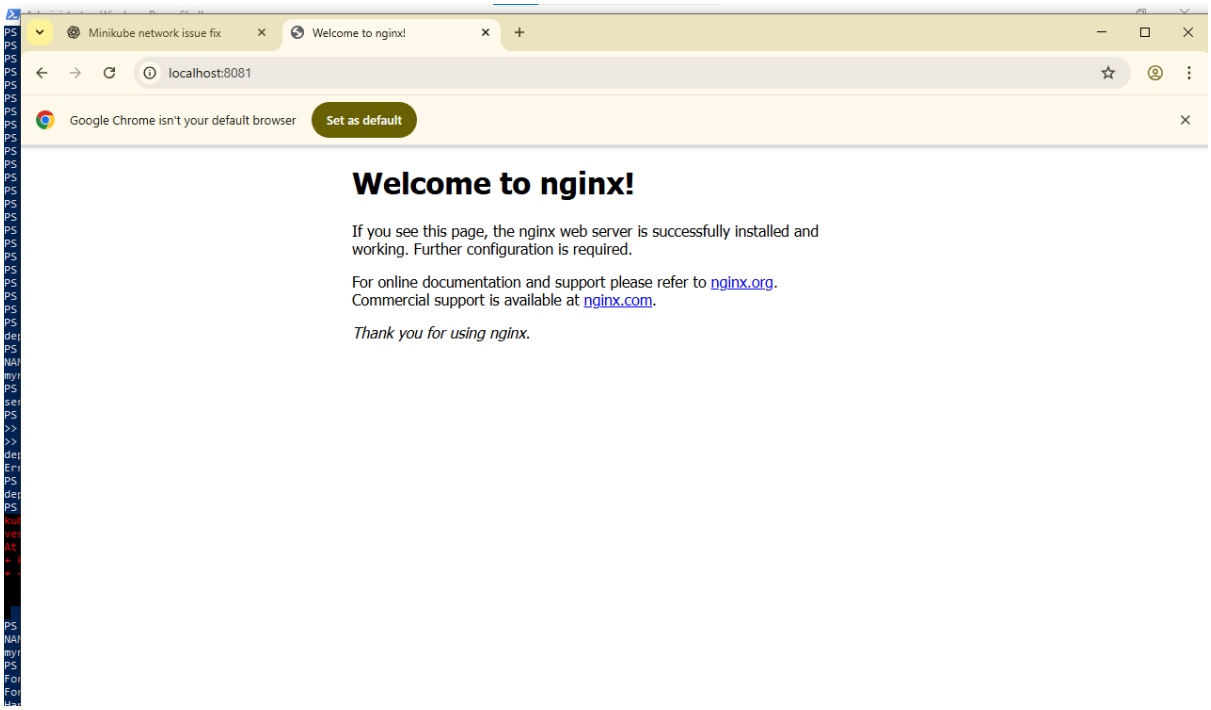
1. **Using Port Forwarding**:
    - Command:

```
kubectl port-forward svc/mynginx 8081:80
```

        - Access the app via http://localhost:8081.

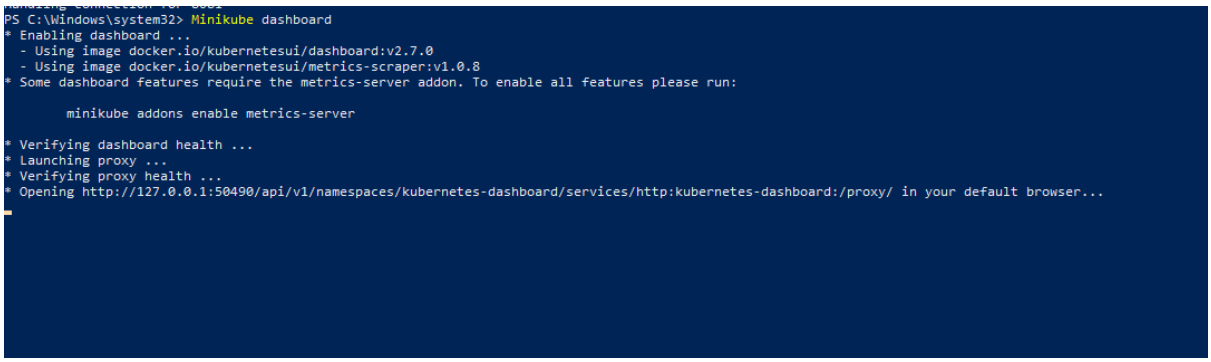


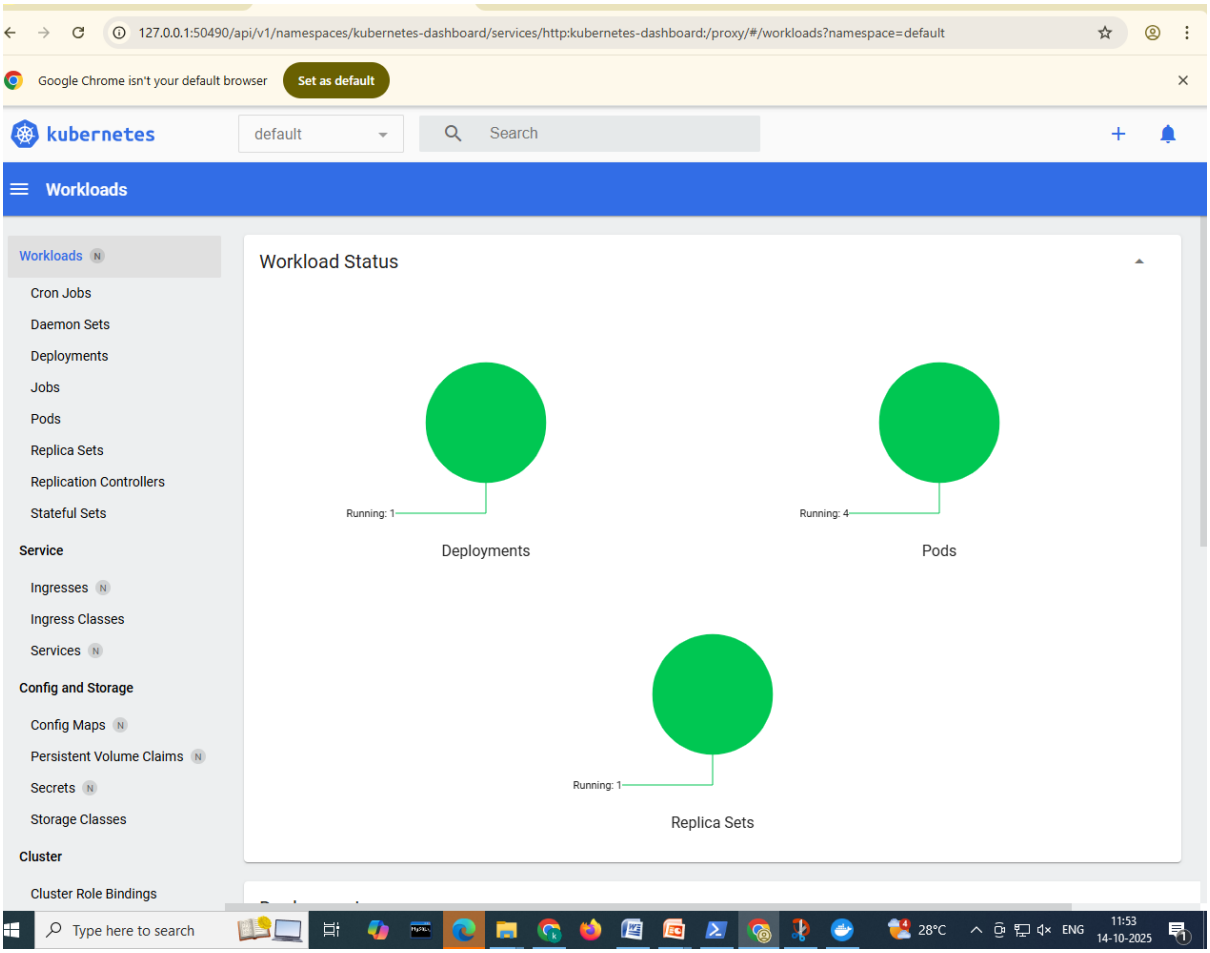


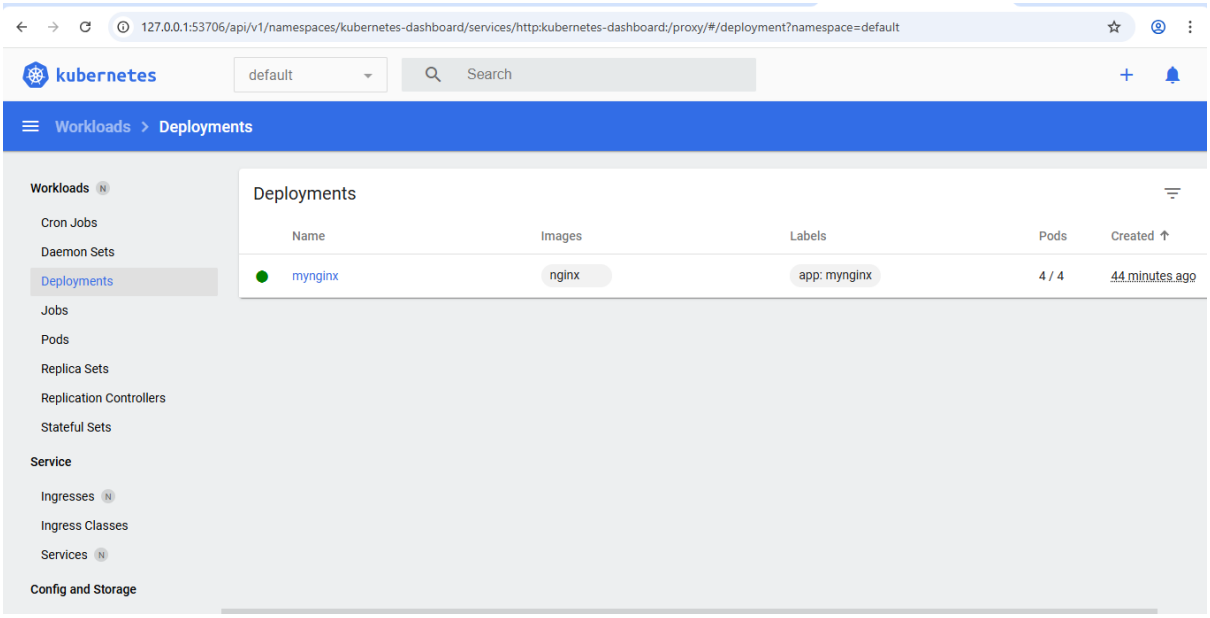


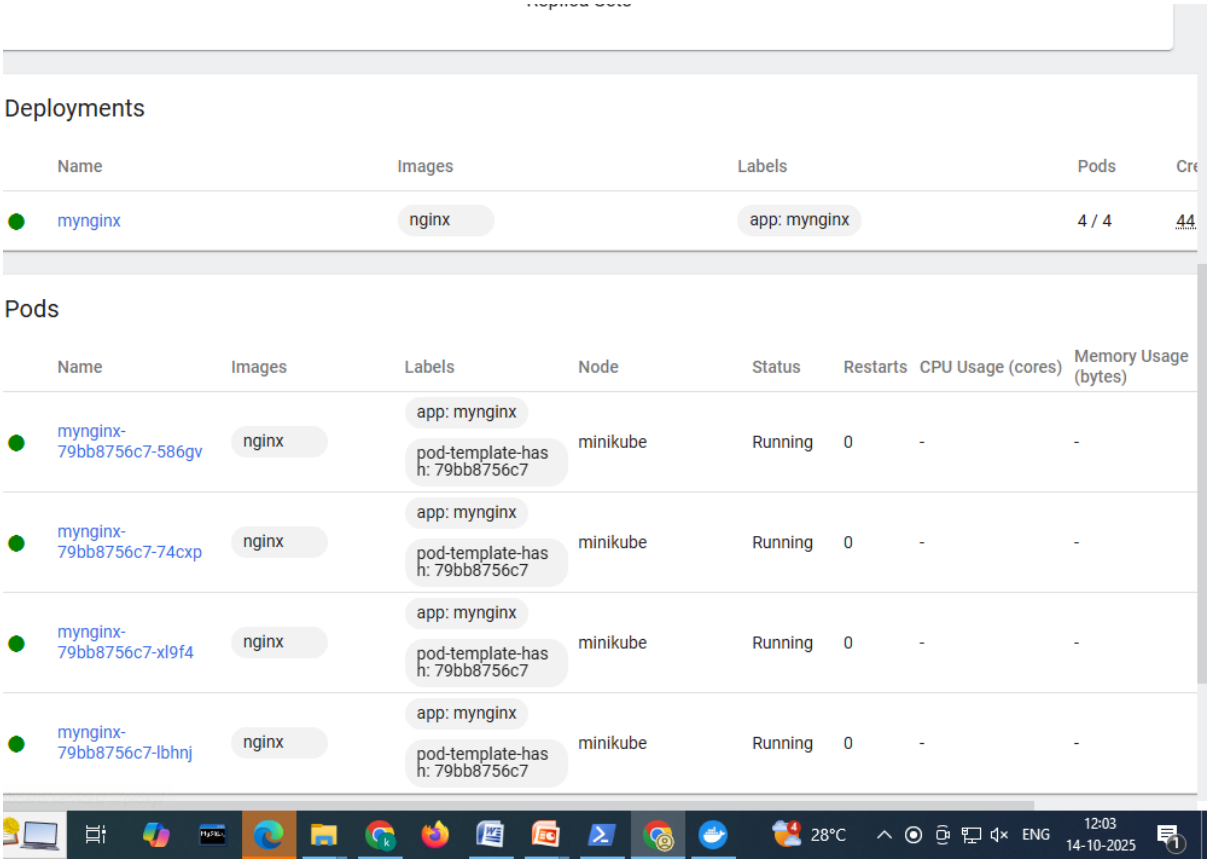
- Open the minikube dashboard

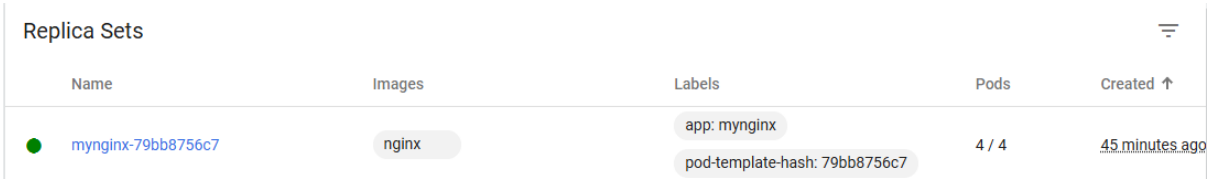
Minikube dashboard




127.0.0.1:50490/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/#/workloads?namespace=default
Google Chrome isn't your default browser
Set as default
kubernetes
default
Search
Workloads
Workloads
Cron Jobs
Daemon Sets
Deployments
Jobs
Pods
Replica Sets
Replication Controllers
Stateful Sets
Service
Ingresses
Ingress Classes
Services
Config and Storage
Config Maps
Persistent Volume Claims
Secrets
Storage Classes
Cluster
Cluster Role Bindings
Workload Status
Running: 1
Deployments
Running: 4
Pods
Running: 1
Replica Sets
Type here to search
28°C
ENG
11:53
14-10-2025


127.0.0.1:53706/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/#/deployment?namespace=default
kubernetes
default
Search
Workloads > Deployments
Workloads
Cron Jobs
Daemon Sets
Deployments
Jobs
Pods
Replica Sets
Replication Controllers
Stateful Sets
Service
Ingresses
Ingress Classes
Services
Config and Storage
Deployments
Name
Images
Labels
Pods
Created
mynginx
nginx
app: mynginx
4 / 4
44 minutes ago



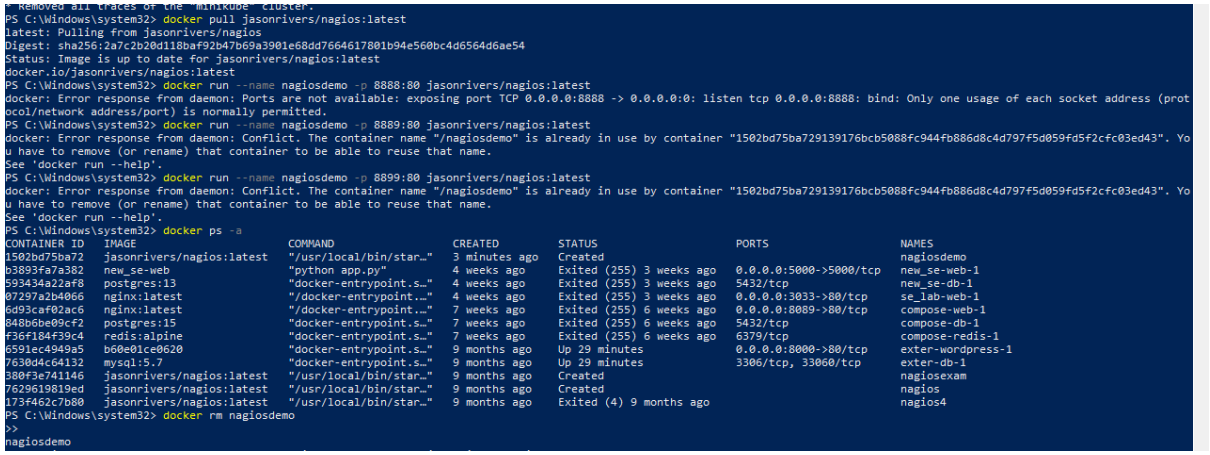


Nagios Automation Steps

Step 1: Pull the Nagios Docker Image

- Open a terminal and run:

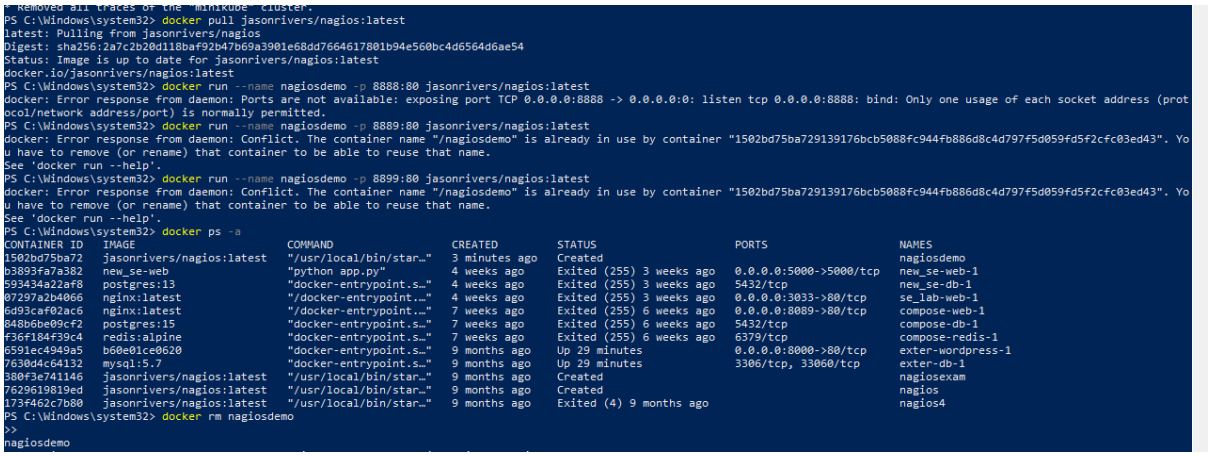
```
docker pull jasonrivers/nagios:latest
```

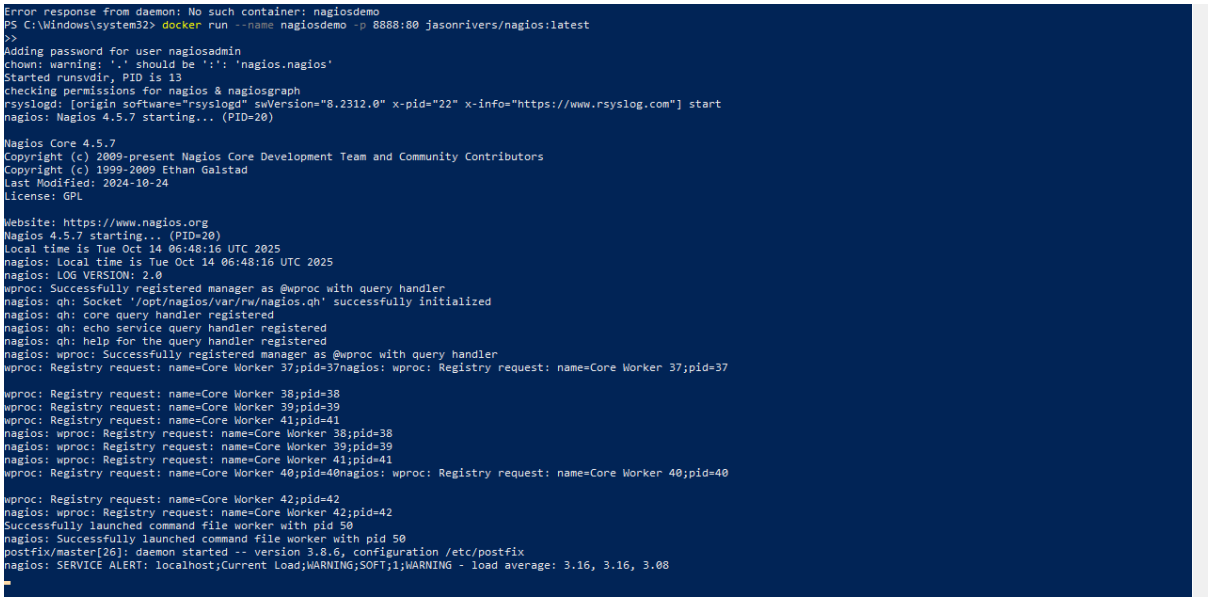


Step 2: Run Nagios

- Command:

```
docker run --name nagiosdemo -p 8898:80 jasonrivers/nagios:latest
```



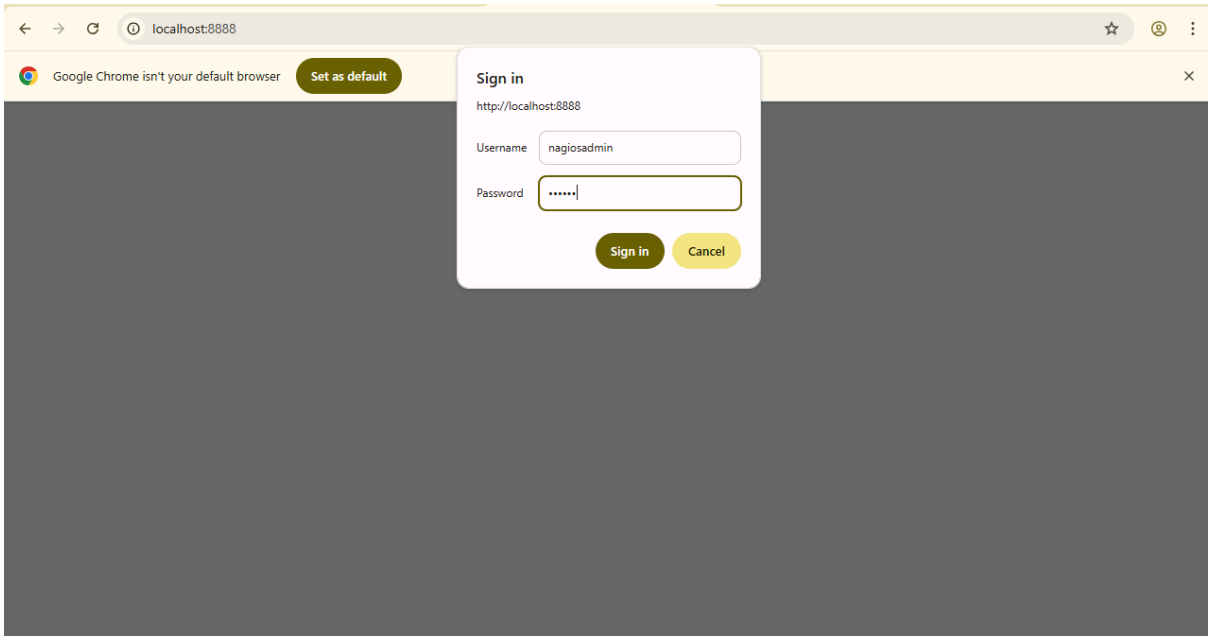


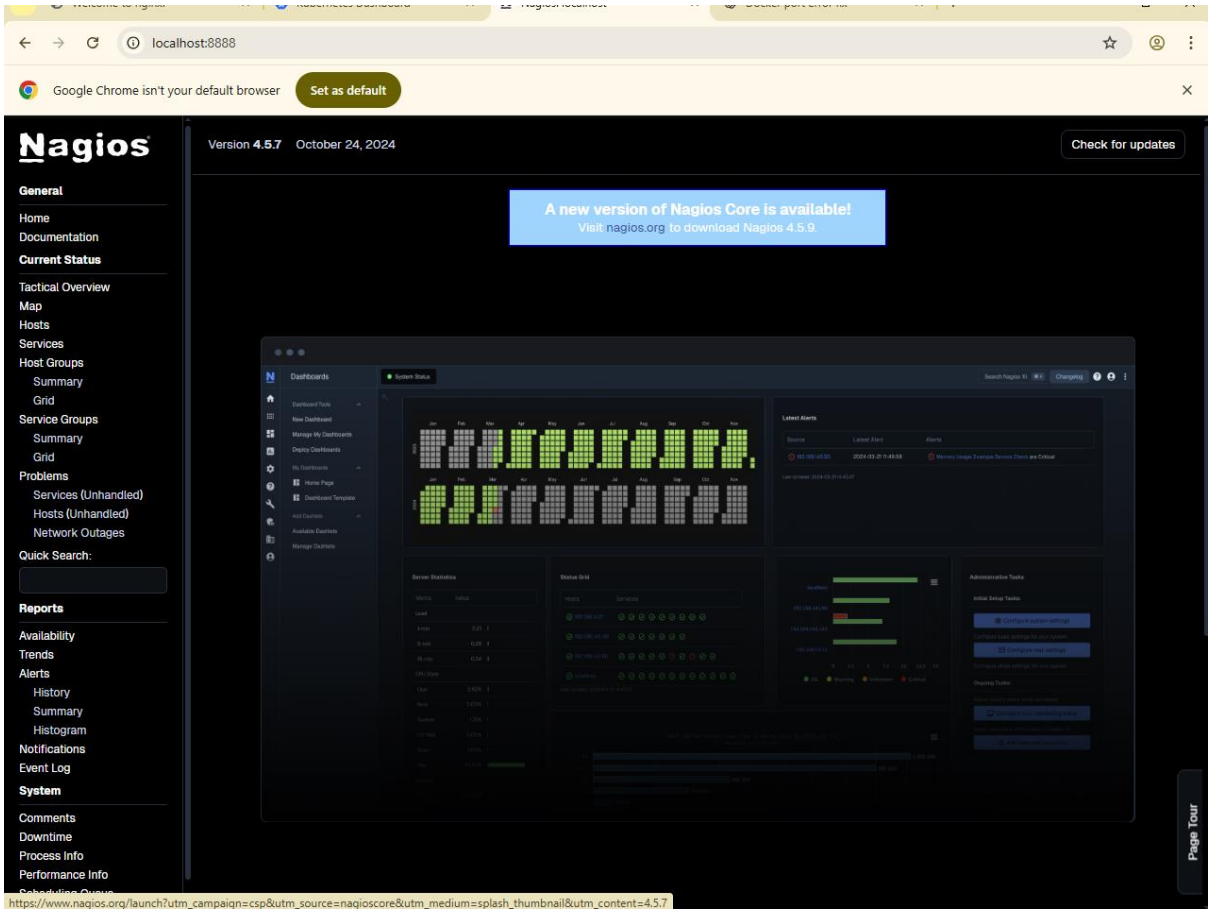
Step 3: Access Nagios Dashboard

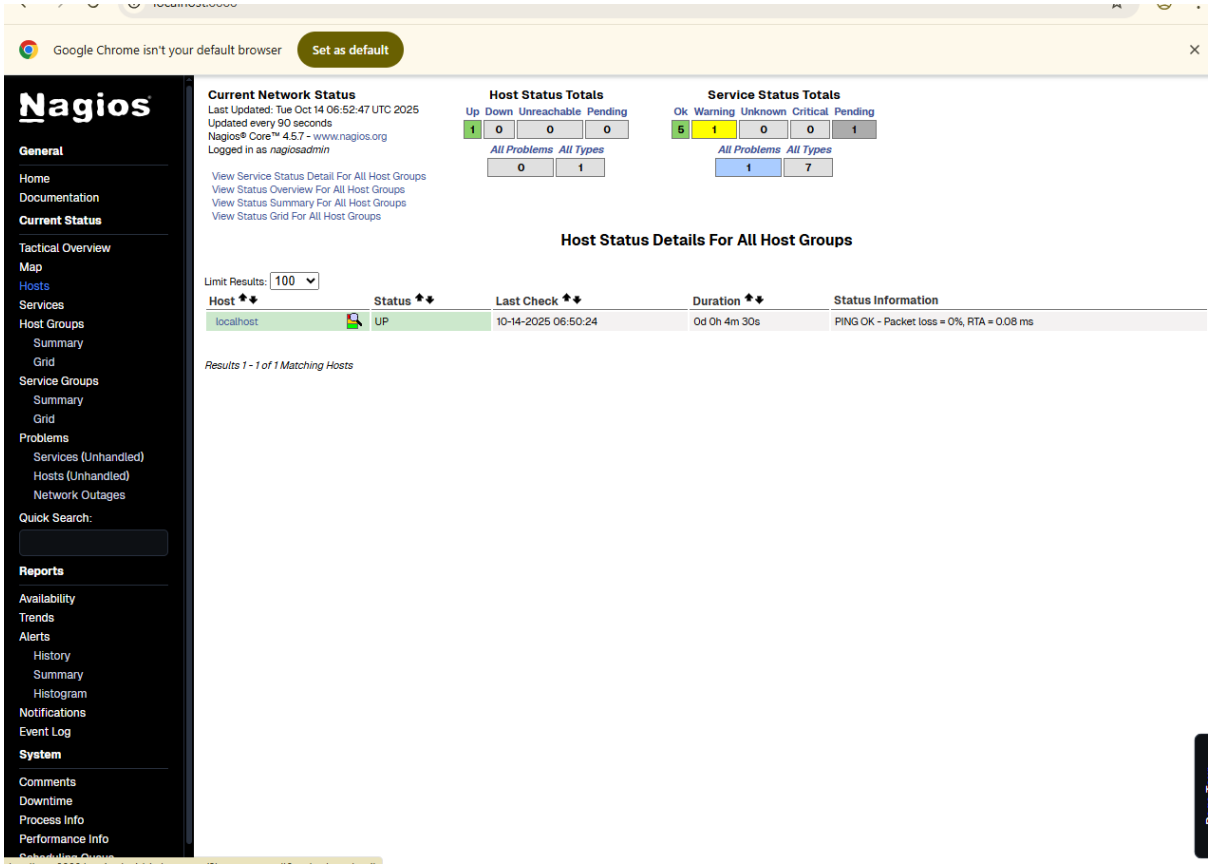
- Open your browser and navigate to:

  `http://localhost:8888`

  - **Login Credentials**:
    - Username: `nagiosadmin`
    - Password: `nagios`
  - Once logged in, explore:
    - Hosts: View systems being monitored.
    - Services: Check tasks being monitored (e.g., CPU usage).
    - Alerts: Access recent notifications.


localhost:8888
Google Chrome isn't your default browser
Set as default
Sign in
http://localhost:8888
Username
nagiosadmin
Password
Sign in
Cancel


localhost:8888
Google Chrome isn't your default browser
Set as default
Nagios
Version 4.5.7 October 24, 2024
Check for updates
A new version of Nagios Core is available!
Visit nagios.org to download Nagios 4.5.9.
General
Home
Documentation
Current Status
Tactical Overview
Map
Hosts
Services
Host Groups
Summary
Grid
Service Groups
Summary
Grid
Problems
Services (Unhandled)
Hosts (Unhandled)
Network Outages
Quick Search:
Reports
Availability
Trends
Alerts
History
Summary
Histogram
Notifications
Event Log
System
Comments
Downtime
Process Info
Performance Info
Page Tour
https://www.nagios.org/launch?utm_campaign=csp&utm_source=nagioscore&utm_medium=splash_thumbnail&utm_content=4.5.7


Google Chrome isn't your default browser
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Nagios
General
Home
Documentation
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Host Groups
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Grid
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Grid
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Services (Unhandled)
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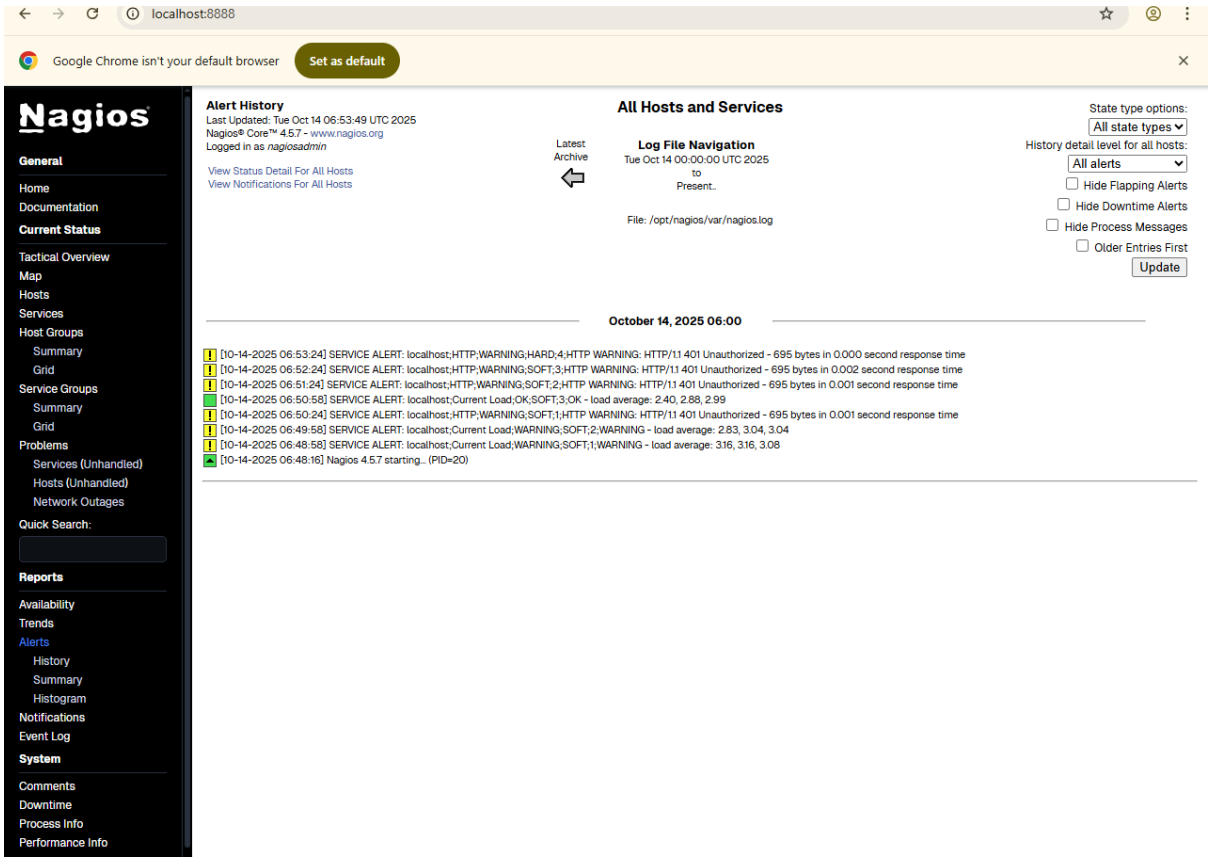
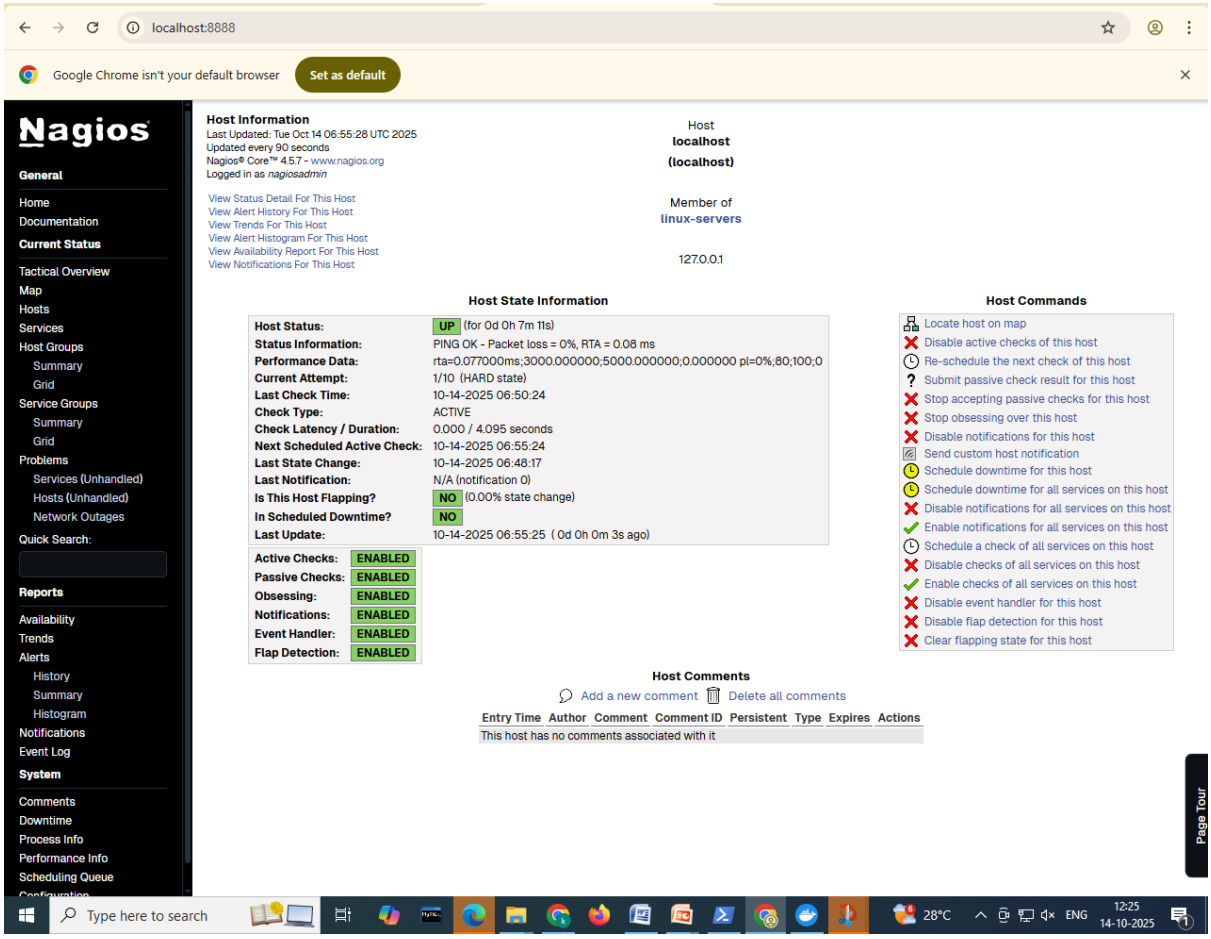
Network Outages
Quick Search:
Reports
Availability
Trends
Alerts
History
Summary
Histogram
Notifications
Event Log
System
Comments
Downtime
Process Info
Performance Info
Current Network Status
Last Updated: Tue Oct 14 06:52:47 UTC 2025
Updated every 90 seconds
Nagios® Core™ 4.5.7 - www.nagios.org
Logged in as nagiosadmin
View Service Status Detail For All Host Groups
View Status Overview For All Host Groups
View Status Summary For All Host Groups
View Status Grid For All Host Groups
Host Status Totals
Up Down Unreachable Pending
1 0 0 0
All Problems All Types
0 1
Service Status Totals
Ok Warning Unknown Critical Pending
5 1 0 0 1
All Problems All Types
1 7
Host Status Details For All Host Groups
Limit Results: 100
Host Status Last Check Duration Status Information
localhost UP 10-14-2025 06:50:24 0d 0h 4m 30s PING OK - Packet loss = 0%, RTA = 0.08 ms
Results 1 - 1 of 1 Matching Hosts


localhost:8888
Google Chrome isn't your default browser
Set as default
Nagios
General
Home
Documentation
Current Status
Tactical Overview
Map
Hosts
Services
Host Groups
Summary
Grid
Service Groups
Summary
Grid
Problems
Services (Unhandled)
Hosts (Unhandled)
Network Outages
Quick Search:
Reports
Availability
Trends
Alerts
History
Summary
Histogram
Notifications
Event Log
System
Comments
Downtime
Process Info
Performance Info
Alert History
Last Updated: Tue Oct 14 06:53:49 UTC 2025
Nagios® Core™ 4.5.7 - www.nagios.org
Logged in as nagiosadmin
View Status Detail For All Hosts
View Notifications For All Hosts
All Hosts and Services
Latest Archive
Log File Navigation
Tue Oct 14 00:00:00 UTC 2025 to Present..
File: /opt/nagios/var/nagios.log
State type options:
All state types
History detail level for all hosts:
All alerts
Hide Flapping Alerts
Hide Downtime Alerts
Hide Process Messages
Older Entries First
Update
October 14, 2025 06:00
[10-14-2025 06:53:24] SERVICE ALERT: localhost;HTTP;WARNING;HARD;4;HTTP WARNING: HTTP/1.1 401 Unauthorized - 695 bytes in 0.000 second response time
[10-14-2025 06:52:24] SERVICE ALERT: localhost;HTTP;WARNING;SOFT;3;HTTP WARNING: HTTP/1.1 401 Unauthorized - 695 bytes in 0.002 second response time
[10-14-2025 06:51:24] SERVICE ALERT: localhost;HTTP;WARNING;SOFT;2;HTTP WARNING: HTTP/1.1 401 Unauthorized - 695 bytes in 0.001 second response time
[10-14-2025 06:50:58] SERVICE ALERT: localhost;Current Load;OK;SOFT;3;OK - load average: 2.40, 2.88, 2.99
[10-14-2025 06:50:24] SERVICE ALERT: localhost;HTTP;WARNING;SOFT;1;HTTP WARNING: HTTP/1.1 401 Unauthorized - 695 bytes in 0.001 second response time
[10-14-2025 06:49:58] SERVICE ALERT: localhost;Current Load;WARNING;SOFT;2;WARNING - load average: 2.83, 3.04, 3.04
[10-14-2025 06:48:58] SERVICE ALERT: localhost;Current Load;WARNING;SOFT;1;WARNING - load average: 3.16, 3.16, 3.08
[10-14-2025 06:48:16] Nagios 4.5.7 starting... (PID=20)

Step 4: Monitoring Host Details

1. **Navigate to the Host Information Page**:
    - Select a host from the **Hosts** menu.
2. **Key Details**:
    - Host Status: Indicates if the system is UP or DOWN.
    - Metrics: View CPU usage, memory status, and network activity.
    - Actions: Reschedule checks, disable notifications, or schedule downtime.



Step 5: Stop and Remove Nagios

1. **Stop the Container**:
    - Command:

```
docker stop nagiosdemo
```

2. **Delete the Container**:
    - Command:

```
docker rm nagiosdemo
```

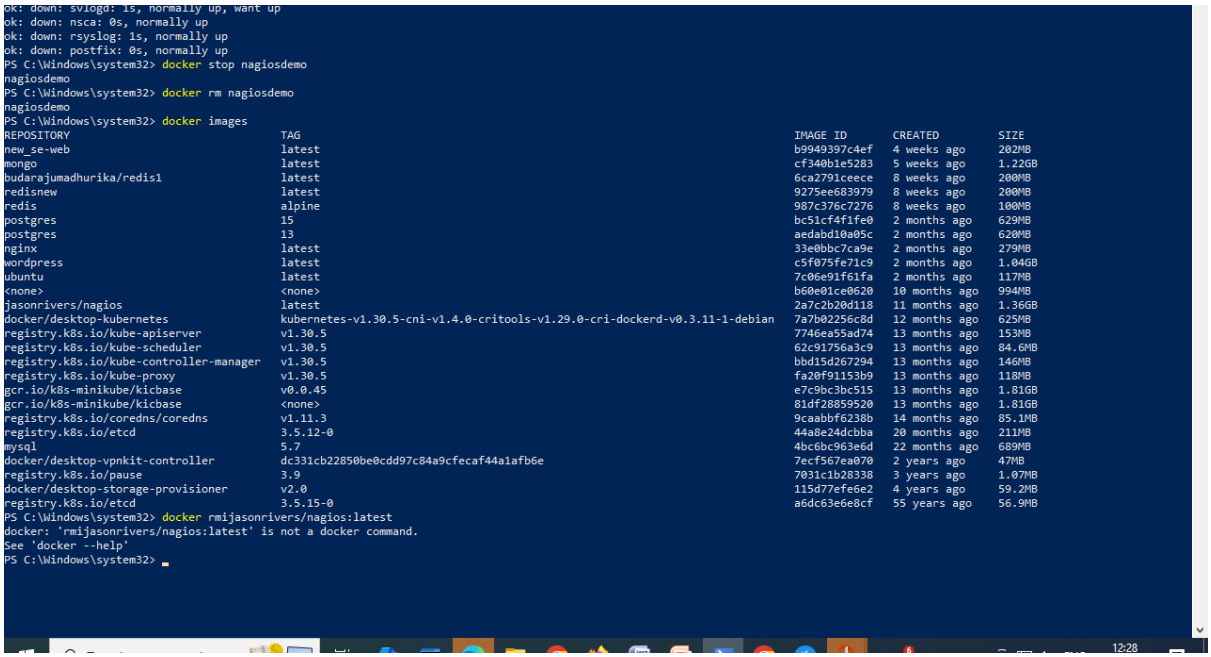
3. **Remove the Image** (Optional):
    - List images:

```
docker images
```

    - Delete the Nagios image:

```
docker rmijasonrivers/nagios:latest
```

4. Observe the docker containers in DockerHub, we can see the latest Nagios Installed running on port:8888



SBQ's

1. Your Pod keeps restarting repeatedly. What will you do?

ANS: Check the pod logs using kubectl logs <pod-name>, review the events with kubectl describe pod <pod-name>, check resource limits (CPU/memory), and verify readiness and liveness probes.

2. A Kubernetes pod is stuck in a "Pending" state. What could be the possible reasons, and how would you troubleshoot it?

ANS: Possible causes: insufficient resources, un schedulable nodes, or affinity issues. Troubleshoot with kubectl describe pod <pod-name> to check events, node capacity, and scheduling issues.

3. How would you debug a failed deployment in Kubernetes?

ANS: Use kubectl describe deployment <deployment-name>, check pod logs (kubectl logs <pod-name>), and check events (kubectl get events). Look for issues in replicas, resources, or probes.

4. You have a Kubernetes Deployment with multiple replicas, and some pods are failing health checks. How would you identify the root cause and fix it?

ANS: Identify the cause by checking the pod's logs (kubectl logs <pod-name>), reviewing the health check configuration, and verifying pod resource consumption. Adjust resources or fix health check configurations.

5. How do you roll back a faulty deployment?

ANS: Use kubectl rollout undo deployment/<deployment-name> to rollback to the previous version.

6. How do you debug a running Pod?

ANS: Use kubectl logs <pod-name>, check the pod status with kubectl describe pod <pod-name>, and inspect events (kubectl get events).

7. You need to expose a local service externally. How to do?

ANS: Use kubectl expose pod <pod-name> --type=LoadBalancer or create a service of type NodePort or LoadBalancer to expose the service externally.

8. How to start and stop Nagios

ANS:

- **Start:** sudo systemctl start nagios
- **Stop:** sudo systemctl stop nagios

9. You installed Nagios but the web interface shows *"Unable to connect to Nagios process"*. How to resolve this?

ANS: Ensure Nagios is running (sudo systemctl status nagios), check Nagios configuration (/usr/local/nagios/etc/nagios.cfg), and restart Nagios (sudo systemctl restart nagios).

10. You added a new host in Nagios, but it's not appearing on the web interface.how to check?

ANS: Ensure the configuration file for the new host is correct, and reload Nagios with sudo systemctl reload nagios. Check Nagios logs for errors.

11. How can you check whether Nagios is running properly?

ANS: Use sudo systemctl status nagios to verify if the service is active and running.

12. How do you view Nagios logs in real-time

ANS: Use tail -f /usr/local/nagios/var/nagios.log to view logs in real-time.

13. What are the advantages of using Nagios?

ANS: Provides comprehensive monitoring for networks, servers, and applications; customizable alerts; robust community support; highly extensible with plugins.