

RUNNING MULTIPLE CONTAINERS USING DOCKER COMPOSE

🚀 docker-compose.yml

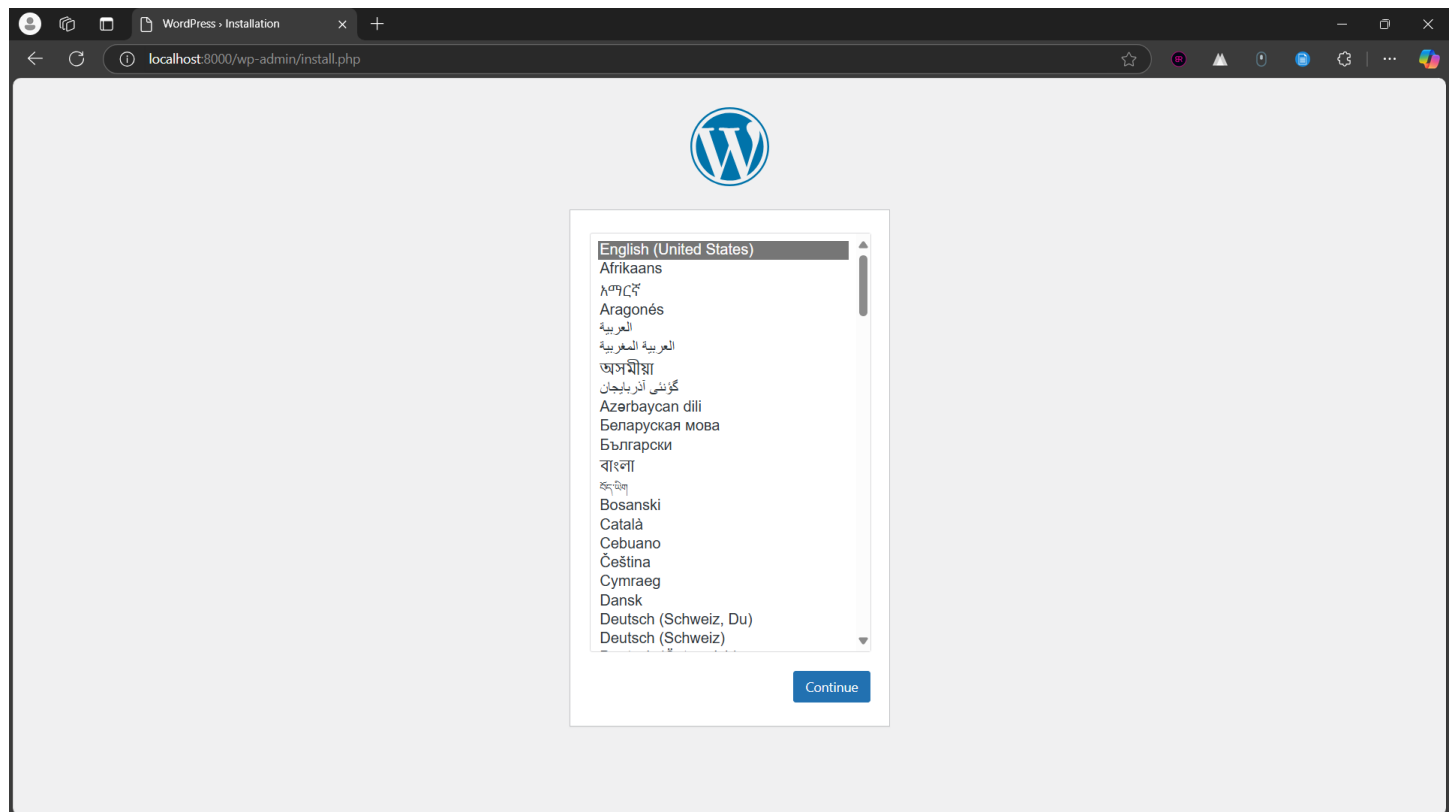
```
1  version: '3.1'
2  services:
3    db:
4      image: mysql:5.7
5      container_name: mysql_container
6      environment:
7        MYSQL_ROOT_PASSWORD: rootpassword
8        MYSQL_DATABASE: wordpress_db
9        MYSQL_USER: wordpress_user
10       MYSQL_PASSWORD: wordpress_pass
11     volumes:
12       - db_data:/var/lib/mysql
13
14     wordpress:
15       depends_on:
16         - db
17       image: wordpress:latest
18       container_name: wordpress_container
19       ports:
20         - "8000:80"
21       environment:
22         WORDPRESS_DB_HOST: db:3306
23         WORDPRESS_DB_USER: wordpress_user
24         WORDPRESS_DB_PASSWORD: wordpress_pass
25         WORDPRESS_DB_NAME: wordpress_db
26       volumes:
27         - ./wordpress_data:/var/www/html
28
29     volumes:
30       db_data:
31
```

Running the Setup

```
PS C:\Users\narra\Desktop\SE_LAB\multi> docker-compose up -d
[+] Running 35/13
✓db 11 layers [#####] 0B/0B Pulled 225.1s
✓wordpress 22 layers [#####] 0B/0B Pulled 250.4s

[+] Running 2/4
- Network multi_default Created 1.6s
- Volume "multi_db_data" Created 1.5s
✓Container mysql_container Started 1.0s
✓Container wordpress_container Started 1.0s
PS C:\Users\narra\Desktop\SE_LAB\multi>
```

Accessing the Application



Welcome

Welcome to the famous five-minute WordPress installation process! Just fill in the information below and you'll be on your way to using the most extendable and powerful personal publishing platform in the world.

Information needed

Please provide the following information. Do not worry, you can always change these settings later.

Site Title

SE

Username

Puneeth

Usernames can have only alphanumeric characters, spaces, underscores, hyphens, periods, and the @ symbol.

Password

1234

Hide

Very weak

Important: You will need this password to log in. Please store it in a secure location.

Confirm Password

☒ Confirm use of weak password

Your Email

narrapuneeth44@gmail.com

Double-check your email address before continuing.

Search engine visibility

☐ Discourage search engines from indexing this site

It is up to search engines to honor this request.

Install WordPress

Dashboard

Home

Updates

Posts

Media

Pages

Comments

Appearance

Plugins

Users

Tools

Settings

Collapse menu

Dashboard

Howdy, Puneeth

Screen Options

Help

Welcome to WordPress!

Learn more about the 6.7.1 version.

Author rich content with blocks and patterns

Block patterns are pre-configured block layouts. Use them to get inspired or create new pages in a flash.

Add a new page

Customize your entire site with block themes

Design everything on your site — from the header down to the footer, all using blocks and patterns.

Open site editor

Switch up your site's look & feel with Styles

Tweak your site, or give it a whole new look! Get creative — how about a new color palette or font?

Edit styles

Site Health Status

No information yet...

Site health checks will automatically run periodically to gather information about your site. You can also [visit the Site Health screen](#) to gather information about your site now.

Quick Draft

Title

Content

What's on your mind?

Drag boxes here

Managing Containers

```
PS C:\Users\narra\Desktop\SE_LAB\multi> docker-compose stop
[+] Stopping 2/2
  ✓ Container wordpress_container Stopped 1.4s
  ✓ Container mysql_container Stopped 1.8s
PS C:\Users\narra\Desktop\SE_LAB\multi> docker-compose start
[+] Running 2/2
  ✓ Container mysql_container Started 0.3s
  ✓ Container wordpress_container Started 0.3s
PS C:\Users\narra\Desktop\SE_LAB\multi> docker-compose down
[+] Running 3/3
  ✓ Container wordpress_container Removed 6.3s
  ✓ Container mysql_container Removed 2.0s
  ✓ Network multi_default Removed 0.2s
PS C:\Users\narra\Desktop\SE_LAB\multi>
```

DEPLOYING AND SCALING APPLICATIONS USING MINIKUBE

Step 1: Setting Up Minikube and Kubernetes

Start Minikube and Create the Nginx Deployment

```
PS C:\Users\narra\Desktop\SE_LAB\multi> minikube start
W1212 15:14:27.394290 34280 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\narra\.docker\contexts\meta\37a8eec1ce19687d132fe29851dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
🐳 minikube v1.34.0 on Microsoft Windows 11 Home 10.0.26100.2454 Build 26100.2454
🔧 Using the docker driver based on existing profile
👉 Starting "minikube" primary control-plane node in "minikube" cluster
📦 Pulling base image v0.0.45 ...
🔄 Updating the running docker "minikube" container ...
❗ Failing to connect to https://registry.k8s.io/ from inside the minikube container
🔧 To pull new external images, you may need to configure a proxy: https://minikube.sigs.k8s.io/docs/reference/networking/proxy/
📦 Preparing Kubernetes v1.31.0 on Docker 27.2.0 ...
🔍 Verifying Kubernetes components...
  * Using image gcr.io/k8s-minikube/storage-provisioner:v5
  * Enabled addons: storage-provisioner, default-storageclass
❗ C:\Program Files\Docker\Docker\resources\bin\kubectl.exe is version 1.29.1, which may have incompatibilities with Kubernetes 1.31.0.
  * Want kubectl v1.31.0? Try 'minikube kubectl -- get pods -A'
🎉 Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
PS C:\Users\narra\Desktop\SE_LAB\multi> kubectl create deployment mynginx --image=nginx
deployment.apps/mynginx created
PS C:\Users\narra\Desktop\SE_LAB\multi> kubectl get deployments
NAME      READY   UP-TO-DATE   AVAILABLE   AGE
mynginx   0/1     1            0           12s
PS C:\Users\narra\Desktop\SE_LAB\multi> |
```

Step 3: Expose the Nginx Deployment to the Outside World:

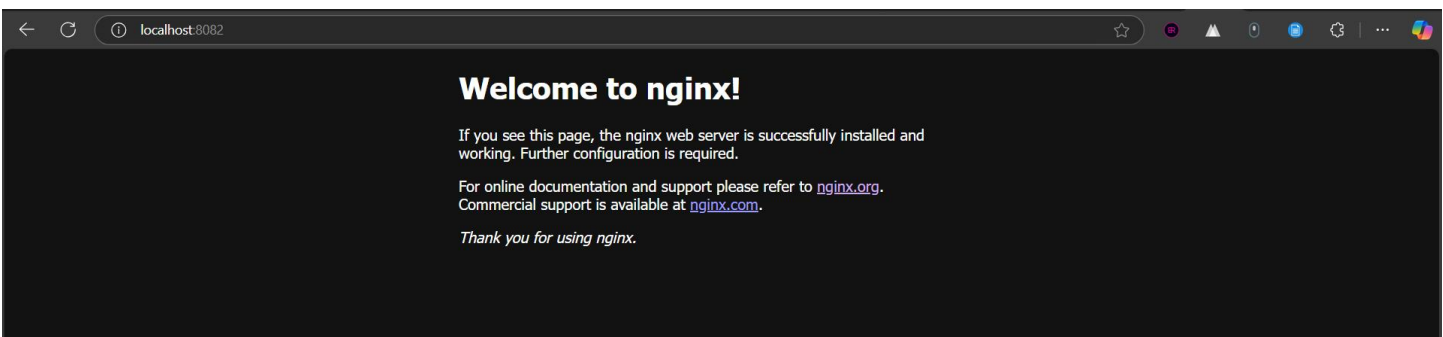
```
PS C:\Users\narra\Desktop\SE_LAB\multi> kubectl expose deployment mynginx --type=NodePort --port=80 --target-port=80
service/mynginx exposed
```

Step 3: Scale the Deployment (Make More Copies):

```
PS C:\Users\narra\Desktop\SE_LAB\multi> kubectl scale deployment mynginx --replicas=4
deployment.apps/mynginx scaled
```

Step 4: Accessing the Nginx App

```
PS C:\Users\narra\Desktop\SE_LAB\multi> kubectl port-forward svc/mynginx 8082:80
Forwarding from 127.0.0.1:8082 -> 80
Forwarding from [::1]:8082 -> 80
Handling connection for 8082
Handling connection for 8082
```

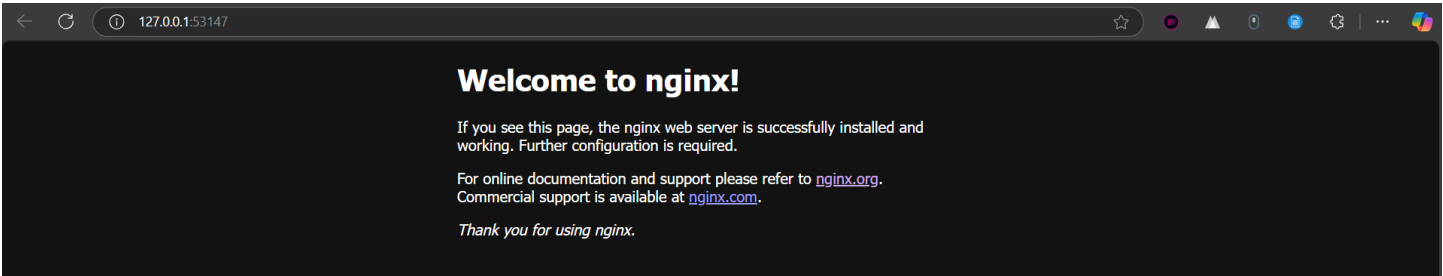


Step 5: Alternative Method – Minikube Tunnel

```
PS C:\Users\narra\Desktop\SE_LAB\multi> minikube tunnel
W1212 15:25:40.665122 34092 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\narra\.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
✅ Tunnel successfully started

🚨 NOTE: Please do not close this terminal as this process must stay alive for the tunnel to be accessible ...
```

```
PS C:\Users\narra> minikube service mynginx --url
W1212 15:26:03.042360 31156 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\narra\.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
http://127.0.0.1:53147
! Because you are using a Docker driver on windows, the terminal needs to be open to run it.
```



Step 6: Stopping and Cleaning Up Everything

```
PS C:\Users\narra\Desktop\SE_LAB\multi> kubectl delete deployment mynginx
deployment.apps "mynginx" deleted
PS C:\Users\narra\Desktop\SE_LAB\multi> kubectl delete service mynginx
service "mynginx" deleted
PS C:\Users\narra\Desktop\SE_LAB\multi> minikube stop
W1212 15:28:26.920781 32268 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\narra\.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
👉 Stopping node "minikube" ...
🔴 Powering off "minikube" via SSH ...
🔴 1 node stopped.
PS C:\Users\narra\Desktop\SE_LAB\multi>
```

DEPLOYING AND MANAGING MONITORING SYSTEMS USING NAGIOS IN DOCKER

Step 1: Pulling the Nagios Image and Running Nagios

```
PS C:\Users\narra\Desktop\SE_LAB\multi> docker pull jasonrivers/nagios:latest
latest: Pulling from jasonrivers/nagios
ff65ddf9395b: Pull complete
785b9873bdf4: Pull complete
0ef9446ba5cc: Pull complete
53aff88bab4: Pull complete
d72f92e29533: Pull complete
706ed7d4ce0a: Pull complete
d3245570f968: Pull complete
e58e184b986a: Pull complete
eeb77e6dde3e: Pull complete
0bd0f5795eeb: Pull complete
71bfb306f8cb: Pull complete
738fc7520889: Pull complete
fe8a6b2cf4e3: Pull complete
e6f8fab512d1: Pull complete
15f36d0b0439: Pull complete
a2fc4187e3b4: Pull complete
3d5785144815: Pull complete
566cdc02555d: Pull complete
c700be87d617: Pull complete
4f4fb700ef54: Pull complete
b69c76bd2b6b: Pull complete
d5aa2a3a6539: Pull complete
8fb30af17153: Pull complete
9ffe54c5c139: Pull complete
279b28aefa10: Pull complete
a900dfcceb38: Pull complete
9a90645e352c: Pull complete
8e911c59da28: Pull complete
c219d58cc3f9: Pull complete
b0e280e9aa8c: Pull complete
8c389e58e867: Pull complete
Digest: sha256:2a7c2b20d118baf92b47b69a3901e68dd7664617801b94e560bc4d6564d6ae54
Status: Downloaded newer image for jasonrivers/nagios:latest
docker.io/jasonrivers/nagios:latest
```

What's Next?

View a summary of image vulnerabilities and recommendations → [docker scout quickview jasonrivers/nagios:latest](#)

```
Nagios Core 4.5.7
Copyright (c) 2009-present Nagios Core Development Team and Community Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 2024-10-24
License: GPL
```

```
Website: https://www.nagios.org
Nagios 4.5.7 starting... (PID=26)
Local time is Thu Dec 12 10:03:24 UTC 2024
wproc: Successfully registered manager as @wproc with query handler
nagios: Nagios 4.5.7 starting... (PID=26)
nagios: Local time is Thu Dec 12 10:03:24 UTC 2024
nagios: LOG VERSION: 2.0
nagios: qh: Socket '/opt/nagios/var/rw/nagios.qh' successfully initialized
nagios: qh: core query handler registered
nagios: qh: echo service query handler registered
nagios: qh: help for the query handler registered
nagios: wproc: Successfully registered manager as @wproc with query handler
wproc: Registry request: name=Core Worker 45;pid=45
nagios: wproc: Registry request: name=Core Worker 45;pid=45
```

Nagios

Version 4.5.7 October 24, 2024

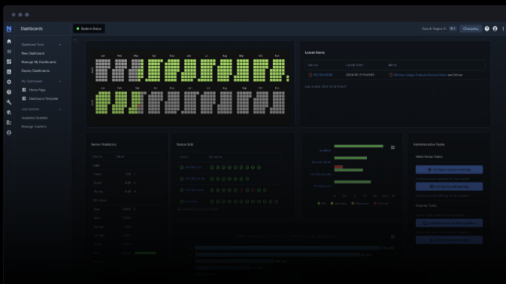
[Check for updates](#)

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A new version of Nagios Core is available!
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←↻📍localhost:8888

Nagios

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Host Information

Last Updated: Thu Dec 12 10:14:12 UTC 2024

Updated every 90 seconds

Nagios® Core™ 4.5.7 - www.nagios.org

Logged in as nagiosadmin

View Status Detail For This Host

View Alert History For This Host

View Trends For This Host

View Alert Histogram For This Host

View Availability Report For This Host

View Notifications For This Host

Host

localhost

(localhost)

Member of

linux-servers

127.0.0.1

Host State Information

Host Status:

UP

(for 0d 0h 10m 46s)

Status Information:

PING OK - Packet loss = 0%, RTA = 0.06 ms

Performance Data:

rtt=0.065000ms;3000.000000;5000.000000;0.000000 pl=0%;80;100;0

Current Attempt:

1/10 (HARD state)

Last Check Time:

12-12-2024 10:10:32

Check Type:

ACTIVE

Check Latency / Duration:

0.000 / 4137 seconds

Next Scheduled Active Check:

12-12-2024 10:15:32

Last State Change:

12-12-2024 10:03:26

Last Notification:

N/A (notification 0)

Is This Host Flapping?

NO

(0.00% state change)

In Scheduled Downtime?

NO

Last Update:

12-12-2024 10:14:04 (0d 0h 0m 8s ago)

Active Checks:

ENABLED

Passive Checks:

ENABLED

Obsessing:

ENABLED

Notifications:

ENABLED

Event Handler:

ENABLED

Flap Detection:

ENABLED

Host Commands

📍

Locate host on map

✖

Disable active checks of this host

🕒

Re-schedule the next check of this host

?

Submit passive check result for this host

✖

Stop accepting passive checks for this host

✖

Stop obsessing over this host

✖

Disable notifications for this host

📧

Send custom host notification

🕒

Schedule downtime for this host

🕒

Schedule downtime for all services on this host

✖

Disable notifications for all services on this host

✓

Enable notifications for all services on this host

🕒

Schedule a check of all services on this host

✖

Disable checks of all services on this host

✓

Enable checks of all services on this host

✖

Disable event handler for this host

✖

Disable flap detection for this host

✖

Clear flapping state for this host

Host Comments

💬

Add a new comment

🗑

Delete all comments

Entry Time

Author

Comment

Comment ID

Persistent

Type

Expires

Actions

This host has no comments associated with it

Page Tour

Step 2: Stopping Nagios and Deleting the Nagios Container

```
PS C:\Users\narra\Desktop\SE_LAB\multi> docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED    STATUS    PORTS    NAMES
PS C:\Users\narra\Desktop\SE_LAB\multi> docker stop nagiosdemo
nagiosdemo
PS C:\Users\narra\Desktop\SE_LAB\multi> docker rm nagiosdemo
nagiosdemo
PS C:\Users\narra\Desktop\SE_LAB\multi> docker images
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
simple-calculator    latest       67cbcd8e42ff     5 days ago      118MB
puneeth5354/simple-calculator    latest       67cbcd8e42ff     5 days ago      118MB
wordpress           latest       c89b40a25cd1     2 weeks ago     700MB
jasonrivers/nagios   latest       2ab73fb5d162     5 weeks ago     960MB
redisnew            latest       16fcce8dd9b7     2 months ago    117MB
mcr.microsoft.com/devcontainers/typescript-node    20-bookworm   180a87146b5c     2 months ago    1.72GB
gcr.io/k8s-minikube/kicbase       v0.0.45       aeed0e1d4642     3 months ago    1.28GB
jupyter-sandbox      latest       7c4f2709f56e     8 months ago    1.44GB
mysql                5.7          5107333e08a8     12 months ago   501MB
PS C:\Users\narra\Desktop\SE_LAB\multi> docker rmi jasonrivers/nagios:latest
Untagged: jasonrivers/nagios:latest
Untagged: jasonrivers/nagios@sha256:2a7c2b20d118baf92b47b69a3901e68dd7664617801b94e560bc4d6564d6ae54
Deleted: sha256:2ab73fb5d162ad0be4ef495fb62e17772120b32721a6c3eb9091fcc800d2909b
Deleted: sha256:631ab139f760d68457a4186da4a60f5e5f11e65aa3b26864b5df237ef75b1311
Deleted: sha256:b10e2a7f4de8bcf15a69232335422c9a736c4a4a93ca288592a2fb53a2de6f45
Deleted: sha256:3a5a34bf7e5ab76f1a3054c5854a9bc7227fd5a0dec73d4a4673456f69cec753
Deleted: sha256:0603355dfe22b531eff49627391c7a8bb944163a735d9142cfcf02529e3c8fffd
Deleted: sha256:2cdfed24d1997cb2951dc561b1c4fbc1947069e22801aab9103cf0f0c1e8c532
Deleted: sha256:5d2ae66d21d91026745748ae98d112256472f76f72deaa904a368b9dd41ca987
Deleted: sha256:b9759ebfa6418db67d02fd861af913fd571bd06c6d3ccddfe760d637e49f15f2
Deleted: sha256:62b02d2bded253673e8e75637dda61e85ad0fbe2e2eaa48bcfda314197add5f4
Deleted: sha256:c8bf237c41fd124329567e29514d381ae822f6d202565e013df75bb47811c94d
Deleted: sha256:5e918b338fe317b5f88044bfc83c21c5bca1f8570092859d4a0c05a8e2e036ce
Deleted: sha256:24ce75f6abff9acee33a572c2adb3cccf1a57d995ba1eaad9bf68b9a50d5bfab
Deleted: sha256:bc291db0b02d187622e2bb6f1c85dcb5baa3a37ce557e5357a628b3befbb0df3
Deleted: sha256:a0d43b5b4f90893c91713325e05539667219a1813fc95804acf0efa1925b5120
Deleted: sha256:b985a1f962d4e9e6c23c7d823a68861a4e69c7dae1a4fd01f2eb425ba130d742
Deleted: sha256:eefaf4321bcf0520d56ae0d458508da8d6c62d6b7fd484ec08c99678254e84dd
Deleted: sha256:320894a8eec97786c5249f30c572390355cd72953ee7dd70a3f6b11be9c2a047
Deleted: sha256:7c52f6b68cf3d137336b97a0fcd9beb2a8512b6c2512c8f535e2a81aa767cab1
Deleted: sha256:88100fb20cb3c5b2c708de42f7d16c2baf0992610f1fb4d435791d52ca008eb5
Deleted: sha256:067cbc3a33f52f4afbacc2ea3d35fbb2270ec8142a04d7e9837fc10f627a84d8
Deleted: sha256:4c463e1f44c076c2a117691f426399fc6236b7d8c92e375058e8045d12525e0f
Deleted: sha256:cd0357977460c3014df276354774e1d424ed389664ab653e4652940ac1d55a6d
Deleted: sha256:1277c94ea1944b9e52ab1fbc34af10214509106536e43fe3fdb802bffd1c1aa02
Deleted: sha256:57ac56afc1593da008f8f3dbfbaa11884f38aeef15b2db2e92c98300f44574cf
```