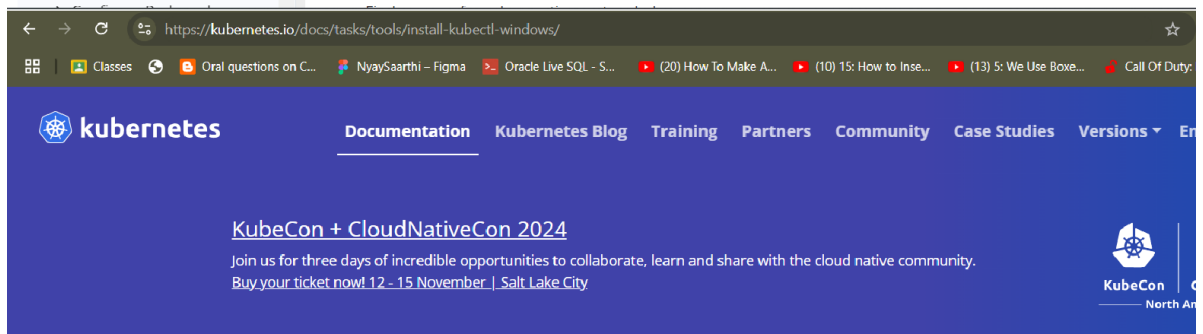
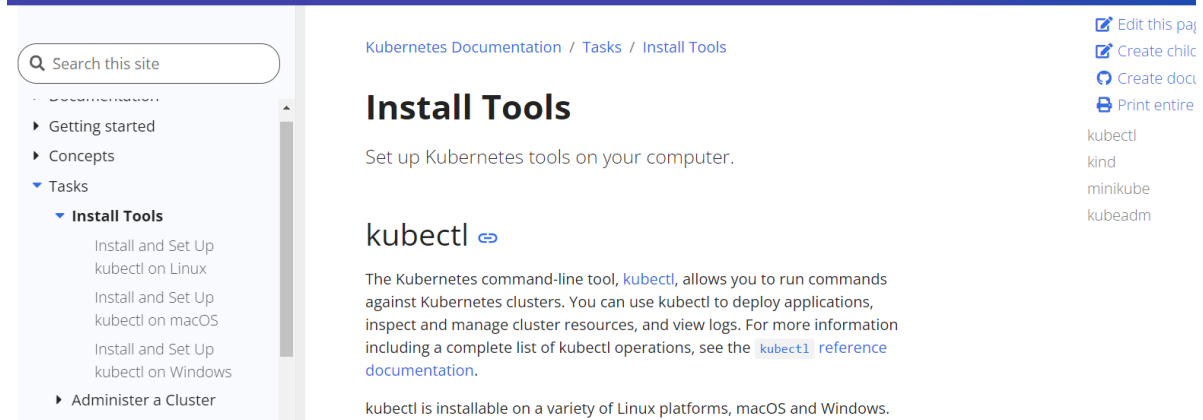
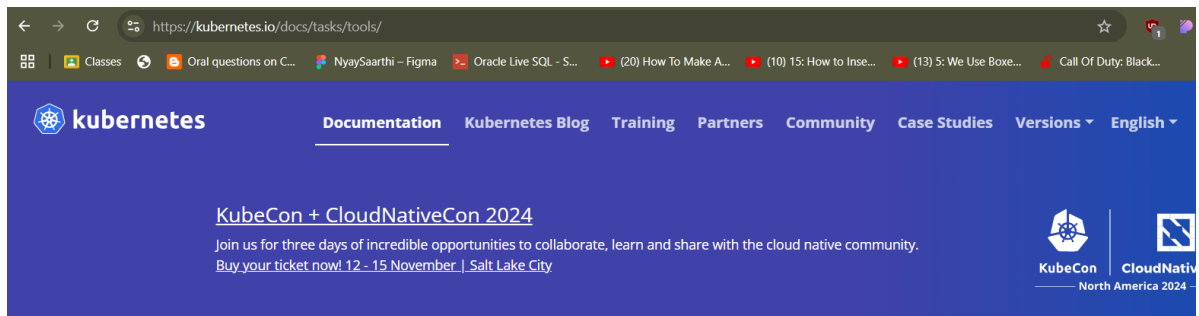


EXP NO 5 KUBERNETES INSTALLATION AND DEPLOY

Installing kubectl:



Microsoft Windows [Version 10.0.22631.4317]
(c) Microsoft Corporation. All rights reserved.

```
C:\Kubernetes>curl.exe -LO "https://dl.k8s.io/release/v1.31.0/bin/windows/amd64/kubectll.exe"
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total   Spent    Left   Speed
100  138  100    138    0     0    474      0  --:--:-- --:--:-- --:--:--    479
100 55.2M  100 55.2M    0     0 1793k      0  0:00:31 0:00:31 --:--:-- 1820k
```

```
C:\Kubernetes>curl.exe -LO "https://dl.k8s.io/v1.31.0/bin/windows/amd64/kubectll.exe.sha256"
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total   Spent    Left   Speed
100  138  100    138    0     0    429      0  --:--:-- --:--:-- --:--:--    432
100   64  100    64    0     0   183      0  --:--:-- --:--:-- --:--:--    183
```

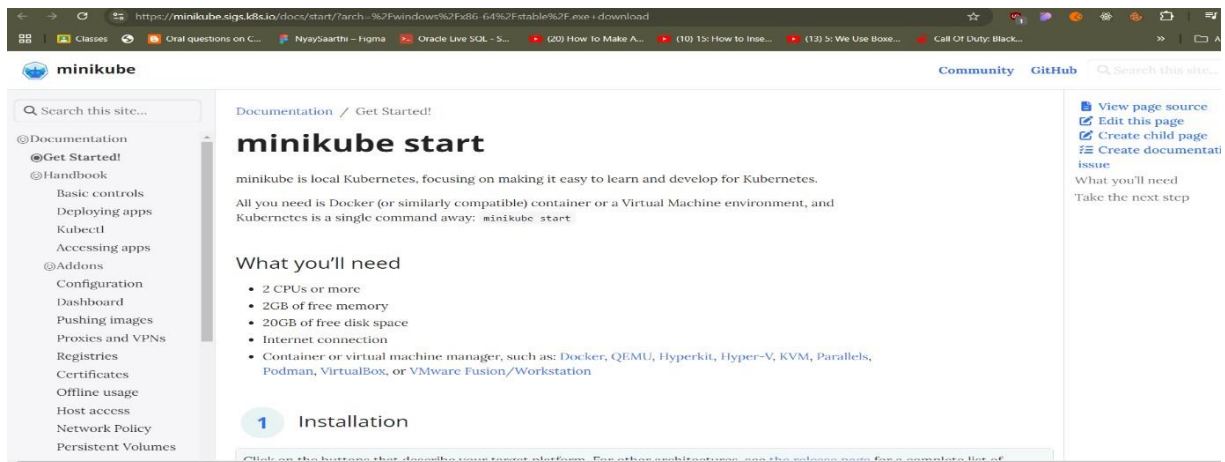
```
C:\Kubernetes>CertUtil -hashfile kubectll.exe SHA256
SHA256 hash of kubectll.exe:
a618de26c86421a394de7041f9d0a87752dd4e555894d2278421cf12097fa531
CertUtil: -hashfile command completed successfully.
```

```
C:\Kubernetes>type kubectll.exe.sha256
a618de26c86421a394de7041f9d0a87752dd4e555894d2278421cf12097fa531
C:\Kubernetes>$(Get-FileHash -Algorithm SHA256 .\kubectll.exe).Hash -eq $(Get-Content .\kubectll.exe.sha256)
'$' is not recognized as an internal or external command,
operable program or batch file.
```

```
C:\Kubernetes>kubectll version --client
Client Version: v1.31.0
Kustomize Version: v5.4.2
```

```
C:\Kubernetes>
```

Installing minikube:



The screenshot shows the minikube documentation page. The left sidebar contains a navigation menu with sections like Documentation, Get Started!, Handbook, Addons, and Configuration. The main content area is titled 'minikube start' and includes a brief introduction to minikube as a local Kubernetes environment. It lists requirements such as 2 CPUs or more, 2GB of free memory, 20GB of free disk space, and an internet connection. A section titled 'What you'll need' follows, and a numbered list begins with '1 Installation'.

minikube start

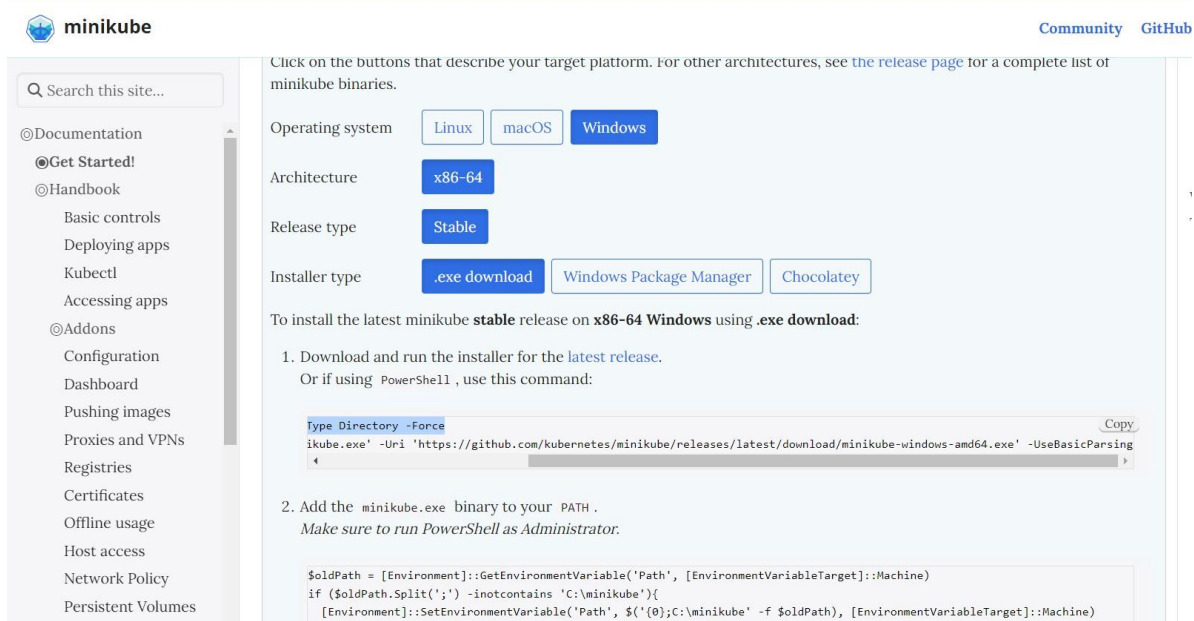
minikube is local Kubernetes, focusing on making it easy to learn and develop for Kubernetes.

All you need is Docker (or similarly compatible) container or a Virtual Machine environment, and Kubernetes is a single command away: `minikube start`

What you'll need

- 2 CPUs or more
- 2GB of free memory
- 20GB of free disk space
- Internet connection
- Container or virtual machine manager, such as: Docker, QEMU, Hyperkit, Hyper-V, KVM, Parallels, Podman, VirtualBox, or VMware Fusion/Workstation

1 Installation



This screenshot shows the installation instructions for minikube on Windows. It features a series of buttons to select the operating system (Linux, macOS, Windows), architecture (x86-64), release type (Stable), and installer type (.exe download, Windows Package Manager, Chocolatey). Below these buttons, it provides a step-by-step guide for installing the latest stable release on x86-64 Windows using the .exe download. The instructions include downloading and running the installer, and a PowerShell command to add the minikube.exe binary to the system path.

Click on the buttons that describe your target platform. For other architectures, see the [release page](#) for a complete list of minikube binaries.

Operating system: Linux macOS Windows

Architecture: x86-64

Release type: Stable

Installer type: .exe download Windows Package Manager Chocolatey

To install the latest minikube **stable** release on **x86-64 Windows** using **.exe download**:

1. Download and run the installer for the [latest release](#).
Or if using `PowerShell`, use this command:

```
type Directory -Force  
ikube.exe' -Uri 'https://github.com/kubernetes/minikube/releases/latest/download/minikube-windows-amd64.exe' -UseBasicParsing
```

- 2. Add the `minikube.exe` binary to your `PATH`.
Make sure to run PowerShell as Administrator.

```
$oldPath = [Environment]::GetEnvironmentVariable('Path', [EnvironmentVariableTarget]::Machine)  
if ($oldPath.Split(';') -notcontains 'C:\minikube'){  
    [Environment]::SetEnvironmentVariable('Path', $('{};C:\minikube' -f $oldPath), [EnvironmentVariableTarget]::Machine)  
}
```

```
PS C:\> New-Item -Path 'c:\' -Name 'minikube' -ItemType Directory -Force

Directory: C:\

Mode                LastWriteTime         Length Name
----                -
d-----         18-10-2024    05:04         minikube

PS C:\> Invoke-WebRequest -OutFile 'c:\minikube\minikube.exe' -Uri 'https://github.com/kubernetes/minikube/releases/latest/download/minikube-windows-amd64.e
xe' -UseBasicParsing
PS C:\> |
```

```
Administrator: Windows PowerShell
PS C:\> $oldPath = [Environment]::GetEnvironmentVariable('Path', [EnvironmentVariableTarget]::Machine)
>> if ($oldPath.Split(';') -notcontains 'C:\minikube'){
>> [Environment]::SetEnvironmentVariable('Path', $('{0};C:\minikube' -f $oldPath), [EnvironmentVariableTarget]::Machine)
>> }
>>
PS C:\> .
```

```
C:\minikube>minikube start
* minikube v1.34.0 on Microsoft Windows 11 Home Single Language 10.0.22631.4317 Build 22631.4317
* 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: default-storageclass, storage-provisioner
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default

C:\minikube>minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured

C:\minikube>
```

Installing Docker :

Check for System requirements:

This screenshot shows the 'Windows install' page on the Docker Docs website. The left sidebar contains a navigation menu with categories like 'Manuals', 'Docker Build', 'Docker Desktop', and 'Install'. The main content area is titled 'Windows' and lists system requirements for WSL 2, Hyper-V, and WSL 2 on ARM. The requirements include WSL version 1.1.3.0 or later, Windows 11 64-bit (Home or Pro version 21H2 or higher), Windows 10 64-bit (Home or Pro 22H2 or higher), and hardware prerequisites like a 64-bit processor with SLAT and 4GB system RAM. A 'Table of contents' on the right lists sections like 'System requirements', 'Install Docker Desktop on Windows', and 'Start Docker Desktop'.

https://docs.docker.com/desktop/install/windows-install/

dockerdocs Get started Guides Manuals Reference Search

Manuals

Docker Desktop

Install

Windows

Understand permission require...

Use the MSI installer

Linux

Sign in

Explore Docker Desktop

Dev Environments (Beta)

contained image store

Docker Desktop's functionality remains consistent on both WSL and Hyper-V, without a preference for either architecture. Hyper-V and WSL have their own advantages and disadvantages, depending on your specific set up and your planned use case.

WSL 2 backend, x86_64 Hyper-V backend, x86_64 WSL 2 backend, Arm (Beta)

- WSL version 1.1.3.0 or later.
- Windows 11 64-bit: Home or Pro version 21H2 or higher, or Enterprise or Education version 21H2 or higher.
- Windows 10 64-bit:
 - We recommend Home or Pro 22H2 (build 19045) or higher, or Enterprise or Education 22H2 (build 19045) or higher.
 - Minimum required is Home or Pro 21H2 (build 19044) or higher, or Enterprise or Education 21H2 (build 19044) or higher.
- Turn on the WSL 2 feature on Windows. For detailed instructions, refer to the [Microsoft documentation](#).
- The following hardware prerequisites are required to successfully run WSL 2 on Windows 10 or Windows 11:
 - 64-bit processor with [Second Level Address Translation \(SLAT\)](#).
 - 4GB system RAM

[Edit this page](#)

[Request changes](#)

Table of contents

System requirements

- Install Docker Desktop on Windows
- Install interactively
- Install from the command line
- Start Docker Desktop
- Where to go next

This screenshot shows the 'Install Docker Desktop on Windows' page on the Docker Docs website. The left sidebar is the same as the previous image. The main content area has a breadcrumb trail: 'Home / Manuals / Docker Desktop / Install / Windows'. The title is 'Install Docker Desktop on Windows'. Below the title, there is a section for 'Docker Desktop terms' and a note about commercial use. The page contains two large blue buttons: 'Docker Desktop for Windows - x86_64' and 'Docker Desktop for Windows - Arm (Beta)'. Below these buttons, there is a link to 'Release notes' for checksums. The 'System requirements' section is partially visible at the bottom.

Home / Manuals / Docker Desktop / Install / Windows

Install Docker Desktop on Windows

Docker Desktop terms

Commercial use of Docker Desktop in larger enterprises (more than 250 employees OR more than \$10 million USD in annual revenue) requires a [paid subscription](#).

This page contains the download URL, information about system requirements, and instructions on how to install Docker Desktop for Windows.

[Docker Desktop for Windows - x86_64](#)

[Docker Desktop for Windows - Arm \(Beta\)](#)

For checksums, see [Release notes](#)

System requirements

Tip

Should have Hyper-V or WSL2

[Edit this page](#)

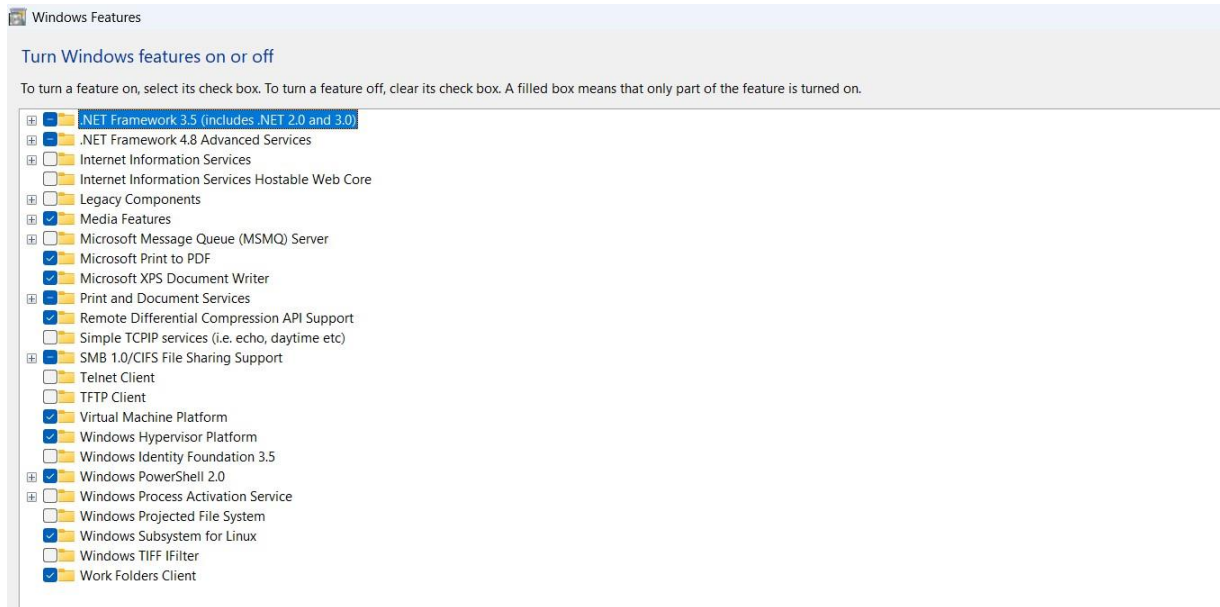
[Request changes](#)

Table of contents

System requirements

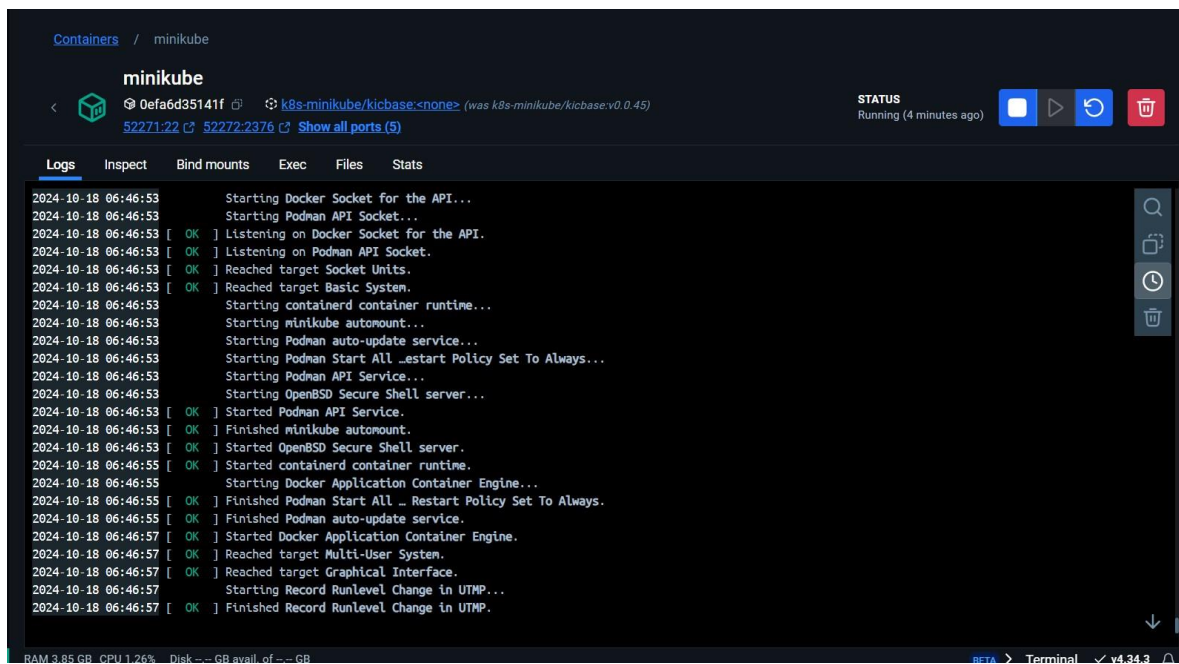
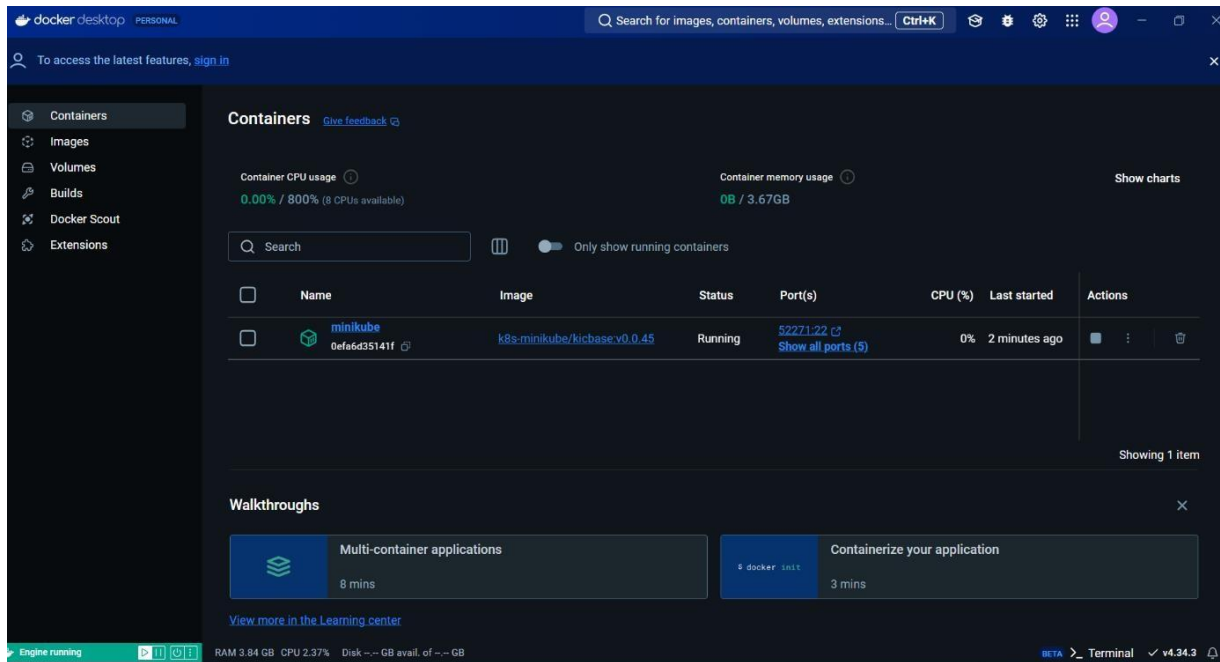
- Install Docker Desktop on Windows
- Install interactively
- Install from the command line
- Start Docker Desktop
- Where to go next

Make sure you have selected :Virtual Machine Platform,Windows Hypervisor Platform and Windows Subsystem for Linux and restart your system once selected to run docker smoothly.



Command to update wsl:

```
Command Prompt
C:\>wsl --update
Checking for updates.
The most recent version of Windows Subsystem for Linux is already installed.
C:\>|
```



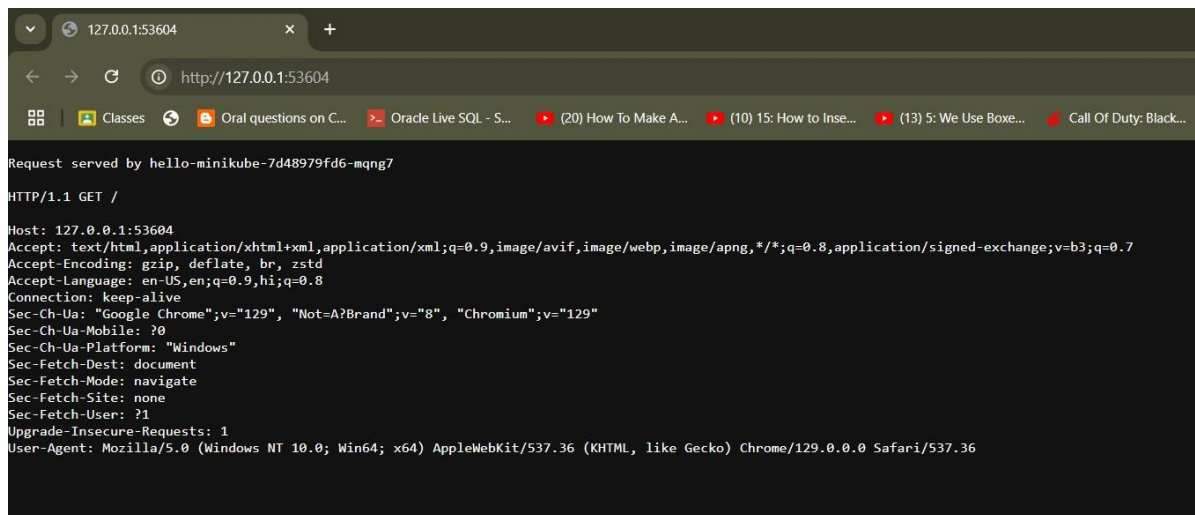

```
C:\minikube>kubectll get po -A
NAMESPACE   NAME                                     READY   STATUS    RESTARTS   AGE
kube-system   coredns-6f6b679f8f-bq25z             1/1     Running   1 (18m ago)  23m
kube-system   etcd-minikube                         1/1     Running   1 (18m ago)  23m
kube-system   kube-apiserver-minikube               1/1     Running   1 (18m ago)  23m
kube-system   kube-controller-manager-minikube      1/1     Running   1 (18m ago)  23m
kube-system   kube-proxy-k4459                     1/1     Running   1 (18m ago)  23m
kube-system   kube-scheduler-minikube               1/1     Running   1 (18m ago)  23m
kube-system   storage-provisioner                   1/1     Running   3 (73s ago)  23m

C:\minikube>kubectll create deployment hello-minikube --image=kicbase/echo-server:1.0
deployment.apps/hello-minikube created

C:\minikube>kubectll expose deployment hello-minikube --type=NodePort --port=8080
service/hello-minikube exposed
```

```
C:\minikube>kubectll get services hello-minikube
NAME          TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)          AGE
hello-minikube  NodePort    10.102.156.18 <none>        8080:32254/TCP   116s

C:\minikube>minikube service hello-minikube
|-----|-----|-----|
| NAMESPACE | NAME          | TARGET PORT | URL              |
|-----|-----|-----|
| default    | hello-minikube | 8080        | http://192.168.49.2:32254 |
|-----|-----|-----|
* Starting tunnel for service hello-minikube.
|-----|-----|-----|
| NAMESPACE | NAME          | TARGET PORT | URL              |
|-----|-----|-----|
| default    | hello-minikube |             | http://127.0.0.1:53604 |
|-----|-----|-----|
* Opening service default/hello-minikube in default browser...
! Because you are using a Docker driver on windows, the terminal needs to be open to run it.
```



```
Request served by hello-minikube-7d48979fd6-mqng7
HTTP/1.1 GET /
Host: 127.0.0.1:53604
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
Accept-Encoding: gzip, deflate, br, zstd
Accept-Language: en-US,en;q=0.9,hi;q=0.8
Connection: keep-alive
Sec-Ch-Ua: "Google Chrome";v="129", "Not=A?Brand";v="8", "Chromium";v="129"
Sec-Ch-Ua-Mobile: ?0
Sec-Ch-Ua-Platform: "Windows"
Sec-Fetch-Dest: document
Sec-Fetch-Mode: navigate
Sec-Fetch-Site: none
Sec-Fetch-User: ?1
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/129.0.0.0 Safari/537.36
```