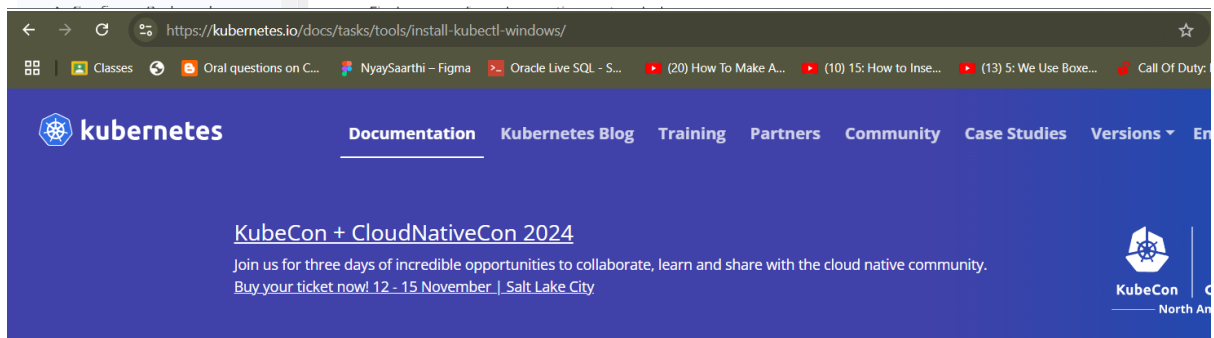
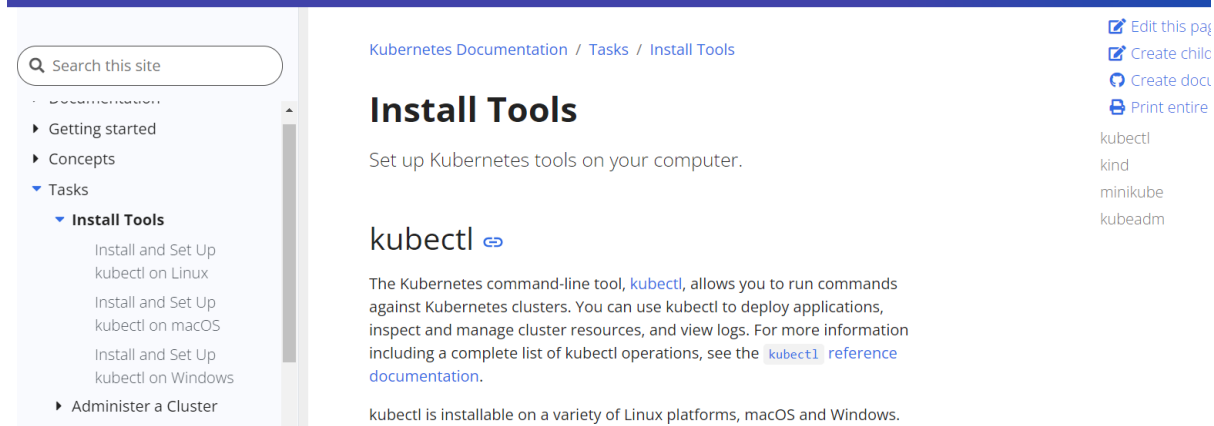
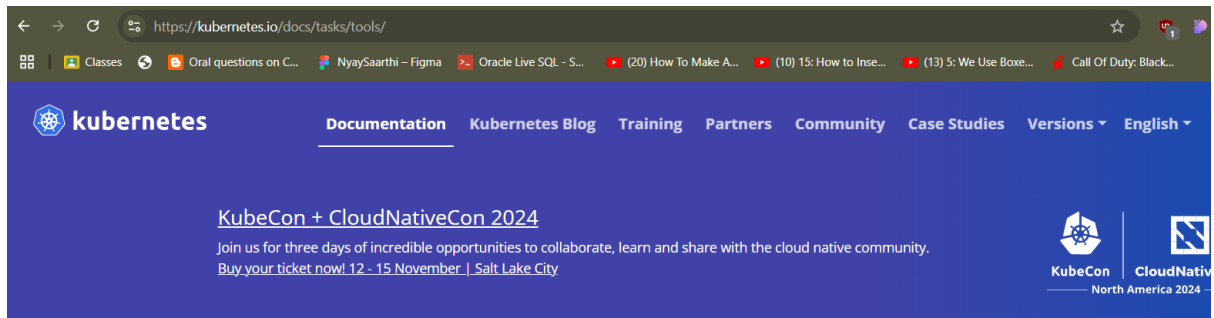


EXP NO 5 KUBERNETES INSTALLATION AND DEPLOY

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/kubectrl.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/kubectrl.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 kubectrl.exe SHA256

SHA256 hash of kubectrl.exe:

a618de26c86421a394de7041f9d0a87752dd4e555894d2278421cf12097fa531

CertUtil: -hashfile command completed successfully.

C:\Kubernetes>type kubectrl.exe.sha256

a618de26c86421a394de7041f9d0a87752dd4e555894d2278421cf12097fa531

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

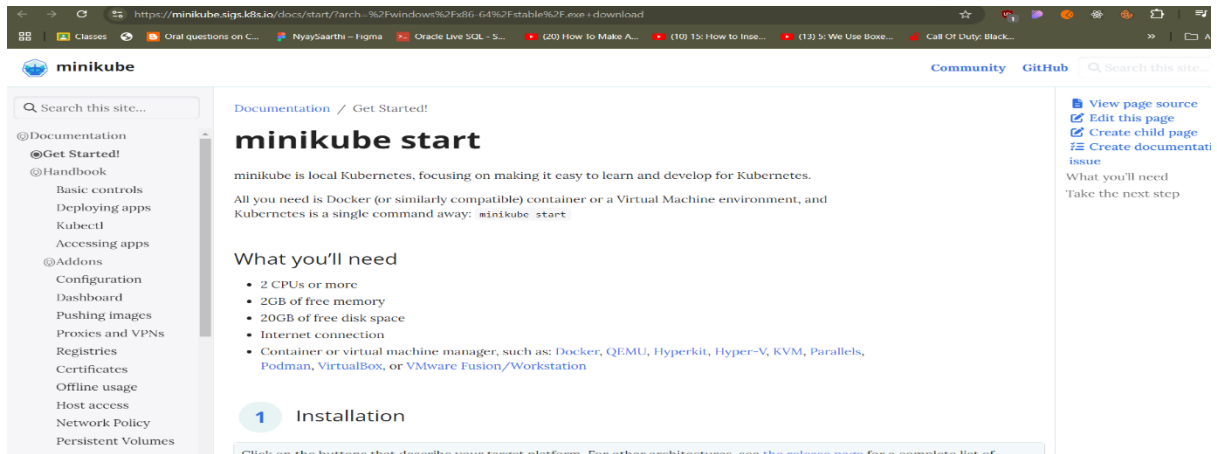
C:\Kubernetes>kubectrl version --client

Client Version: v1.31.0

Kustomize Version: v5.4.2

C:\Kubernetes>|

Installing minikube:



The screenshot shows the 'minikube start' page. The left sidebar contains a search bar and a navigation menu with categories like Documentation, Get Started!, Handbook, Addons, and others. The main content area is titled 'minikube start' and includes a brief introduction, a list of requirements (2 CPUs or more, 2GB of free memory, 20GB of free disk space, Internet connection, and a container or virtual machine manager), and a section for '1 Installation'. The right sidebar has links for 'View page source', 'Edit this page', 'Create child page', 'Create documentation issue', and 'What you'll need'.

minikube start

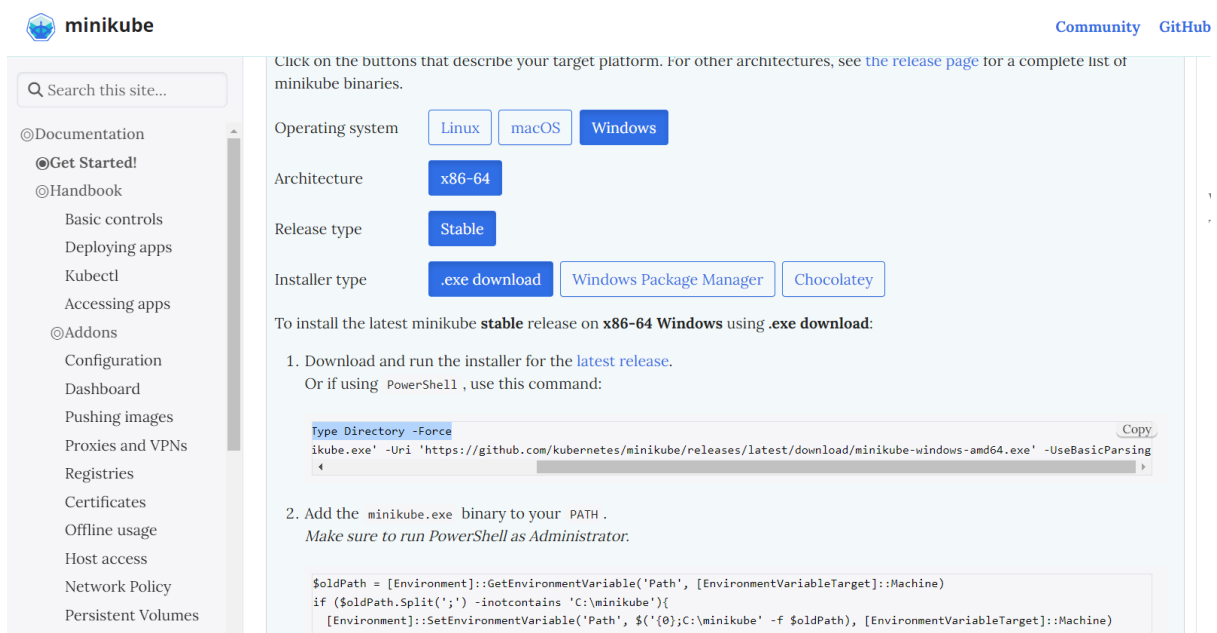
minikube is local Kubernetes, focusing on making it easy to learn and develop for Kubernetes.

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



The screenshot shows the 'minikube' installation instructions page. The left sidebar is similar to the previous one. The main content area is titled 'minikube' and includes a search bar. Below the search bar, there are buttons for 'Operating system' (Linux, macOS, Windows), 'Architecture' (x86-64), 'Release type' (Stable), and 'Installer type' (.exe download, Windows Package Manager, Chocolatey). The instructions then state: 'To install the latest minikube stable release on x86-64 Windows using .exe download:'. The first step is '1. Download and run the installer for the latest release. Or if using PowerShell, use this command:'. A code block shows the PowerShell command to download the installer. The second step is '2. Add the minikube.exe binary to your PATH. Make sure to run PowerShell as Administrator.' A code block shows the PowerShell command to add the binary to the PATH.

minikube

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', $('{0};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.exe' -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>
```

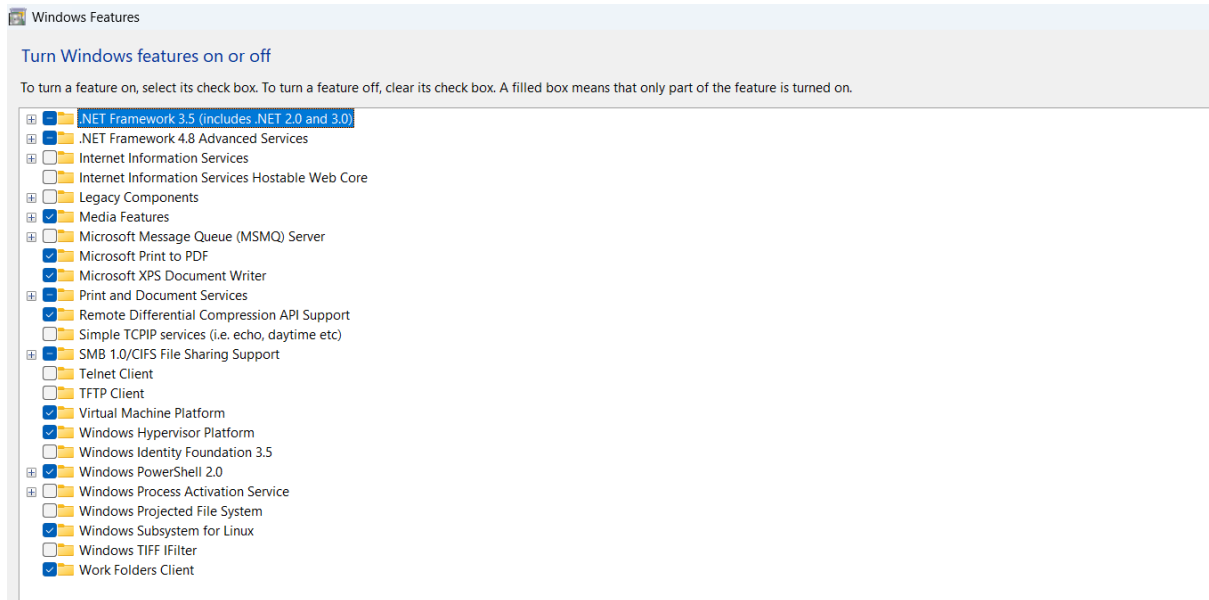
Installing Docker :

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 Compose', 'Docker Desktop', 'Install', 'Mac', 'Linux', and 'Sign in'. The 'Windows' sub-category is selected. The main content area is titled 'Docker Desktop's functionality remains consistent on both WSL and Hyper-V, without a preference for either architecture.' Below this, it lists system requirements for 'WSL 2 backend, x86_64', 'Hyper-V backend, x86_64', and 'WSL 2 backend, Arm (Beta)'. The requirements include WSL version 1.1.3.0 or later, Windows 11 64-bit (Home or Pro version 21H2 or higher), and Windows 10 64-bit (Home or Pro 22H2 or higher). It also mentions hardware prerequisites like a 64-bit processor with SLAT and 4GB system RAM. A 'Table of contents' on the right lists 'System requirements', 'Install Docker Desktop on Windows', 'Install interactively', 'Install from the command line', 'Start Docker Desktop', and 'Where to go next'.

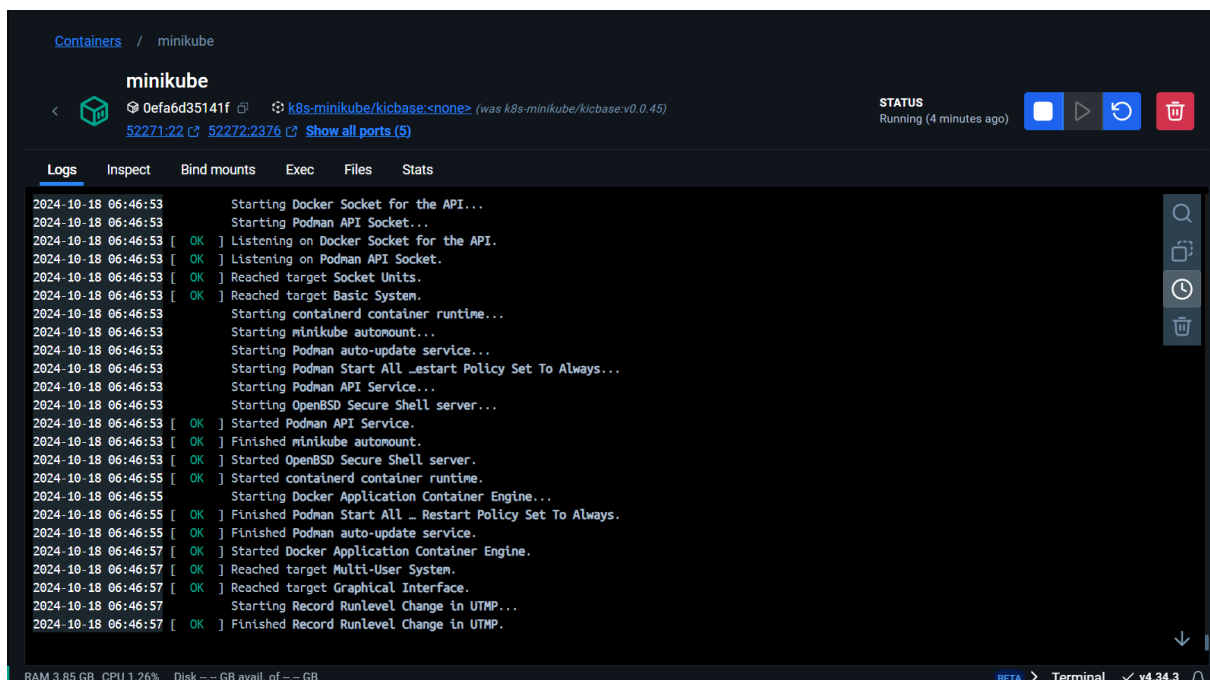
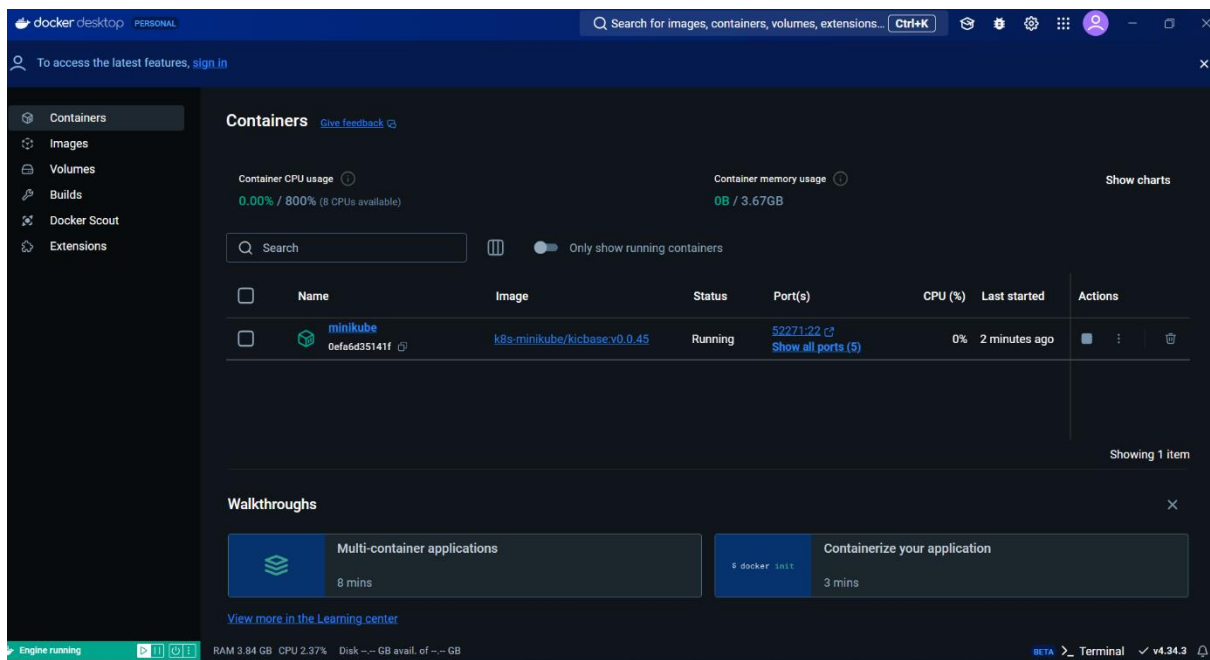
This screenshot shows the 'Install Docker Desktop on Windows' page on the Docker Docs website. The left sidebar is similar to the previous screenshot, with 'Windows' selected. The main content area has a breadcrumb trail: 'Home / Manuals / Docker Desktop / Install / Windows'. The title 'Install Docker Desktop on Windows' is prominent. Below the title, it mentions 'Docker Desktop terms' and states that commercial use in larger enterprises requires a 'paid subscription'. A paragraph explains that this page contains download URLs, system requirements, and installation instructions. Two blue buttons are visible: 'Docker Desktop for Windows - x86_64' and 'Docker Desktop for Windows - Arm (Beta)'. Below these, it says 'For checksums, see Release notes'. The 'System requirements' section is partially visible at the bottom, starting with a 'Tip' icon.

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 | TARGET PORT | URL |
|-----|
| default   | 8080        | http://192.168.49.2:32254 |
|-----|
* Starting tunnel for service hello-minikube.
|-----|
| NAMESPACE | TARGET PORT | URL |
|-----|
| default   | 8080        | 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.
```

127.0.0.1:53604 x +

← → ↻ http://127.0.0.1:53604

Classes Oral questions on C... Oracle Live SQL - S... (20) How To Make A... (10) 15: How to Inse... (13) 5: We Use Boxe... Call Of Duty: Black...

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