

Experiment: Install Local K8S Dev Environment

Open a PowerShell Prompt

```
PS C:\Windows\system32> choco install kind
```

Chocolatey v0.10.15

Installing the following packages:

kind

By installing you accept licenses for the packages.

Progress: Downloading docker-desktop 2.3.0.4... 100%

Progress: Downloading kind 0.8.1... 100%

docker-desktop v2.3.0.4 [Approved]

docker-desktop package files install completed. Performing other installation steps.

The package docker-desktop wants to run 'chocolateyinstall.ps1'.

Note: If you don't run this script, the installation will fail.

Note: To confirm automatically next time, use '-y' or consider:

choco feature enable -n allowGlobalConfirmation

Do you want to run the script?([Y]es/[A]ll - yes to all/[N]o/[P]rint): Y

Downloading docker-desktop

from

'https://desktop.docker.com/win/stable/46911/Docker%20Desktop%20Installer.exe'

Progress: 100% - Completed download of

C:\Users\wcsadmin\AppData\Local\Temp\chocolatey\docker-desktop\2.3.0.4\Docker Desktop Installer.exe (373.93 MB).

Download of Docker Desktop Installer.exe (373.93 MB) completed.

Hashes match.

Installing docker-desktop...

docker-desktop has been installed.

docker-desktop may be able to be automatically uninstalled.

Environment Vars (like PATH) have changed. Close/reopen your shell to see the changes (or in powershell/cmd.exe just type `refreshenv`).

The install of docker-desktop was successful.

Software installed to 'C:\Program Files\Docker\Docker'

kind v0.8.1 [Approved]

kind package files install completed. Performing other installation steps.

The package kind wants to run 'chocolateyinstall.ps1'.

Note: If you don't run this script, the installation will fail.

Note: To confirm automatically next time, use '-y' or consider:

choco feature enable -n allowGlobalConfirmation

Do you want to run the script?([Y]es/[A]ll - yes to all/[N]o/[P]rint):Y

kind v0.8.1 [Approved]

kind package files install completed. Performing other installation steps.

The package kind wants to run 'chocolateyinstall.ps1'.

Note: If you don't run this script, the installation will fail.

Note: To confirm automatically next time, use '-y' or consider:

choco feature enable -n allowGlobalConfirmation

Do you want to run the script?([Y]es/[A]ll - yes to all/[N]o/[P]rint): Y

Downloading kind 64 bit

from 'https://github.com/kubernetes-sigs/kind/releases/download/v0.8.1/kind-windows-amd64'

Progress: 100% - Completed download of C:\ProgramData\chocolatey\lib\kind\kind.exe (9.32 MB).

Download of kind.exe (9.32 MB) completed.

Hashes match.

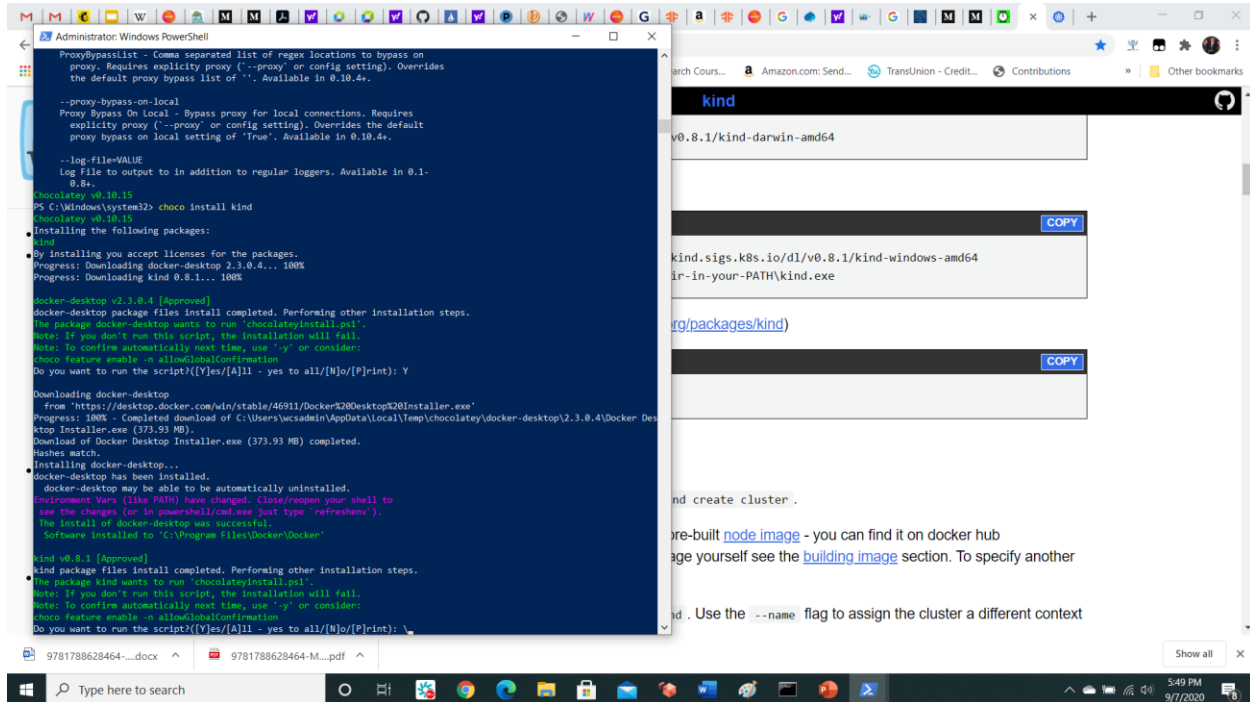
ShimGen has successfully created a shim for kind.exe

The install of kind was successful.

Software install location not explicitly set, could be in package or default install location if installer.

Chocolatey installed 2/2 packages.

See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).



```
Administrator: Windows PowerShell

ProxyBypassList - Comma separated list of regex locations to bypass on
proxy. Requires explicitly proxy ('--proxy' or config setting). Overrides
the default proxy bypass list of ''. Available in 0.10.4+.

--proxy-bypass-on-local
Proxy Bypass On Local - Bypass proxy for local connections. Requires
explicitly proxy ('--proxy' or config setting). Overrides the default
proxy bypass on local setting of 'True'. Available in 0.10.4+.

--log-file=VALUE
Log File to output to in addition to regular loggers. Available in 0.1-
0.8+.

Chocolatey v0.10.15
PS C:\Windows\system32> choco install kind
Chocolatey v0.10.15
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Downloading docker-desktop
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Progress: 100% - Completed download of C:\Users\wcsadmin\AppData\Local\Temp\chocolatey\docker-desktop\2.3.0.4\Docker Des
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Download of Docker Desktop Installer.exe (373.93 MB) completed.
Hashes match.
Installing docker-desktop...
docker-desktop has been installed.
docker-desktop may be able to be automatically uninstalled.
Environment Vars (like PATH) have changed. Close/reopen your shell to
see the changes (or in powershell/cmd.exe just type 'refreshenv').
The install of docker-desktop was successful.
Software installed to 'C:\Program Files\Docker\Docker'

kind v0.8.1 [Approved]
kind package files install completed. Performing other installation steps.
The package kind wants to run 'chocolateyinstall.ps1'.
Note: If you don't run this script, the installation will fail.
Note: To confirm automatically next time, use '-y' or consider:
choco feature enable -n allowGlobalConfirmation
Do you want to run the script?([Y]es/[A]ll - yes to all/[N]o/[P]rint): \
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Administrator: Windows PowerShell

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The install of docker-desktop was successful.
  Software installed to 'C:\Program Files\Docker\Docker'

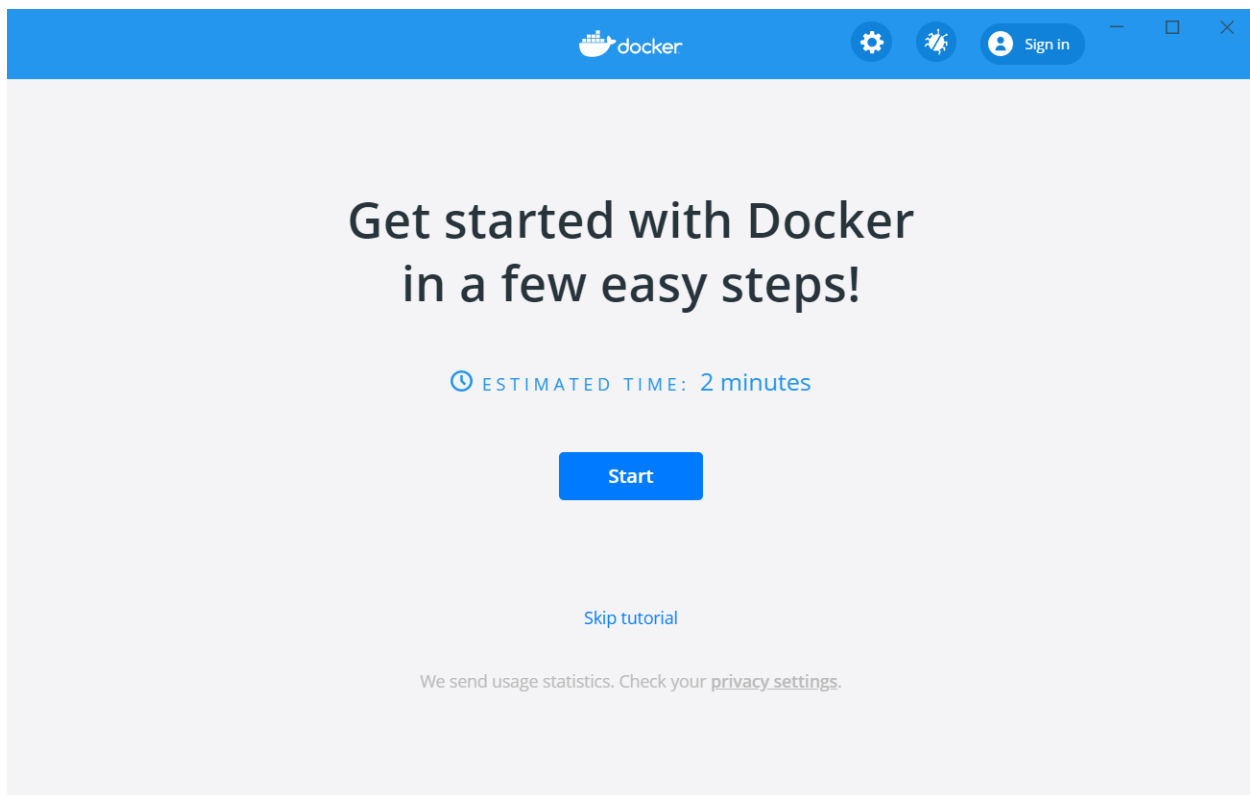
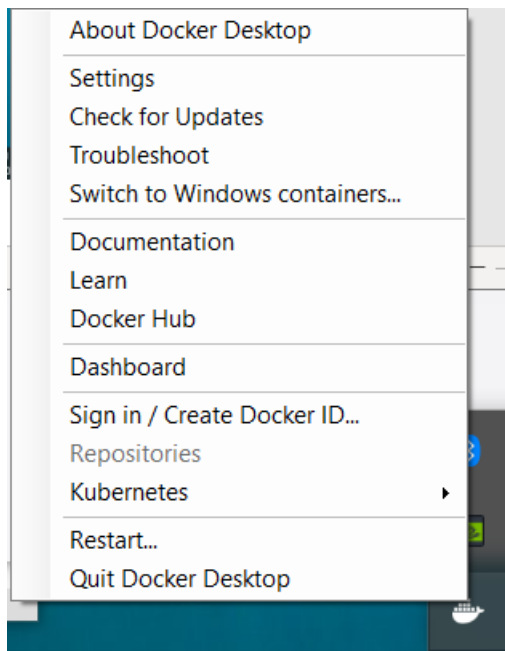
kind v0.8.1 [Approved]
kind package files install completed. Performing other installation steps.
The package kind wants to run 'chocolateyinstall.ps1'.
Note: If you don't run this script, the installation will fail.
Note: To confirm automatically next time, use '-y' or consider:
choco feature enable -n allowGlobalConfirmation
Do you want to run the script?([Y]es/[A]ll - yes to all/[N]o/[P]rint): Y

Downloading kind 64 bit
  from 'https://github.com/kubernetes-sigs/kind/releases/download/v0.8.1/kind-windows-amd64'
Progress: 100% - Completed download of C:\ProgramData\chocolatey\lib\kind\kind.exe (9.32 MB).
Download of kind.exe (9.32 MB) completed.
Hashes match.
ShimGen has successfully created a shim for kind.exe
The install of kind was successful.
  Software install location not explicitly set, could be in package or
  default install location if installer.

Chocolatey installed 2/2 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).
PS C:\Windows\system32>
```

Restart your Windows VM or machine

You should see notification from your System Tray that Docker for Hyper-V backend is starting and then in the system tray you should see our favorite containerized whale.



Take the tour, if this is your first time, or you're a veteran to load our first image and create a container in KIND. It's quick and painless.

The screenshot shows the Docker Desktop application window. The top bar is blue with the Docker logo and a 'Sign in' button. The main content area is light gray and displays a tutorial step titled 'First, clone a repository'. On the left, a vertical list of steps is shown: 1. Clone (highlighted in blue), 2. Build, 3. Run, and 4. Share. The main text explains that the 'Getting Started' project is a simple GitHub repository used for building and running containers. It suggests installing Git if not already present. A blue button contains the command `git clone https://github.com/docker/getting-started.git` followed by a right-pointing arrow. Below this, it says 'You can also type the command directly in a command line interface.' At the bottom left is a 'Skip Tutorial' link, and at the bottom right is a 'Next Step' button. On the right side of the window, a Windows PowerShell terminal is open, showing the standard Windows PowerShell prompt and the current directory `PS C:\Users\wcaadmin>`.

If you have Git installed, which is necessary for the class continue to click the Command Button and it will be pasted automatically (like Katacoda) into the Powershell window and clone the repo for the docker getting started.

The next step is to change to the folder with the repo we just cloned and build a docker container

```
PS C:\projects> cd getting-started  
PS C:\projects\getting-started> docker build -t docker101tutorial .
```

Once complete we'll stand up our first KIND cluster.

CA Administrator: Command Prompt

to read about a specific subcommand or concept.
See 'git help git' for an overview of the system.

```
C:\Windows\system32>cd \projects\kind
```

```
C:\projects\kind>kind create cluster
```

Creating cluster "kind" ...

- Ensuring node image (kindest/node:v1.18.2) ...

█ Ensuring node image (kindest/node:v1.18.2) █

- Preparing nodes █ █ ...

█ Preparing nodes █ █

- Writing configuration █ █ ...

█ Writing configuration █ █

- Starting control-plane █ █ ...

█ Starting control-plane █ █

- Installing CNI █ █ ...

█ Installing CNI █ █

- Installing StorageClass █ █ ...

█ Installing StorageClass █ █

Set kubectl context to "kind-kind"

You can now use your cluster with:

```
kubectl cluster-info --context kind-kind
```

Have a nice day! █ █

```
C:\projects\kind>
```

Super simple, execute “kind create cluster”, and go grab a refill on your favorite beverage while it spins for a few minutes depending on your network speed.

Clone

Build

Run

Share

Now, build the image

A Docker image is a private file system just for your container. It provides all the files and code your container needs.

```
cd getting-started
docker build -t docker101tutorial .
```

Skip Tutorial

Next Step

Removing intermediate container a33bdcfa6b99
----> 77a2c7cad879
Step 16/21 : FROM base AS build
----> 4e5eddf7c60b
Step 18/21 : RUN mdocs build
INFO - Cleaning site directory
INFO - Building documentation to directory : /app/site
INFO - The following pages exist in the docs directory, but are not included in the "nav" configuration:
- index.md
Removing intermediate container 18e231fa0330
----> d8e558400369
Step 19/21 : FROM nginx:alpine
alpine: Pulling from library/nginx
df20fa9351a1: Already exists
3db268b1fe8f: Pull complete
f682f0660e7a: Pull complete
7eb0e8838bc0: Pull complete
e8bf1226cc17: Pull complete
Digest: sha256:a97eb9ecc708c8aa715ccfb5e9338f5456e4b65575daf304f108301f3b497314
Status: Downloaded newer image for nginx:alpine
----> 6f715d38cfe0
Step 20/21 : COPY --from=app-zip-creator /app.zip /usr/share/nginx/html/assets/app.zip
----> 6ee3ec6870e5
Step 21/21 : COPY --from=build /app/site /usr/share/nginx/html
----> 88c2c625cb70
Successfully built 88c2c625cb70
Successfully tagged docker101tutorial:latest
SECURITY WARNING: You are building a Docker image from Windows against a non-Windows Docker host. All files and directories added to build context will have '-rwxr-xr-x' permissions. It is recommended to double check and reset permissions for sensitive files and directories.
PS C:\Users\wcsadmin\getting-started>

PS C:\Users\wcsadmin\getting-started> **docker run -d -p 80:80 --name docker-tutorial docker101tutorial**

Clone

Build

Run

Share

Run your first container

Start a container from the pre-built image you just built.

```
docker run -d -p 80:80 --name docker-tutorial docker101tutorial
```

Skip Tutorial

Next Step

Windows Security Alert

Windows Defender Firewall has blocked some features of this app

Name: com.docker.backend
Publisher: Unknown
Path: C:\program files\docker\docker\resources\com.docker.backend.exe

Allow com.docker.backend to communicate on these networks:
☐ Private networks, such as my home or work network
☒ Public networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security)

What are the risks of allowing an app through a firewall?

Allow access Cancel

PS C:\Users\wcsadmin\getting-started>
PS C:\Users\wcsadmin\getting-started>
PS C:\Users\wcsadmin\getting-started> cd getti
PS C:\Users\wcsadmin> git clone htt
: A positional parameter cannot
t accepts argument 'PS'.
arl
-started PS C:\Users\wcsadmin>
tps://github
ryInfo : InvalidArgumen
et-Location], ParameterBindingE
ualifiedErrorId : PositionalPara
ound,Microsoft.PowerShell.Comma
ationCommand
wcsadmin\getting-started> .com/doc
started.gitPS C:\Users\wcsadmin> g
ps://github
er/getting-started.git^C
wcsadmin\getting-started> cd getti
C
wcsadmin\getting-started> docker
ker101tutorial . docker run -d -p
docker-tutorial docker101tutorial
unknown shorthand flag: 'd' in -d
See 'docker build --help'.
PS C:\Users\wcsadmin\getting-started> docker r
un -d -p 80:80 --name docker-tutorial docker10
1tutorial
e5b72f602a04e81b4fe2fb3c797054f0948f645b018eb9
f9510d099d60e55822
PS C:\Users\wcsadmin\getting-started>

Click **“Allow access”** to allow your container to be run

We should see the ID for our container returned. It will look similar to below

e5b72f602a04e81b4fe2fb3c797054f0948f645b018eb9f9510d099d60e55822

✓ Clone

✓ Build

✓ Run

4 Share

Now save and share your image

You must be signed in to Docker Hub to share your image.
[Sign in here.](#)

Save and share your image on Docker Hub to enable other users to easily download and run the image on any destination machine.

```
docker tag docker101tutorial {userName}/docker101tutorial
docker push {userName}/docker101tutorial
```

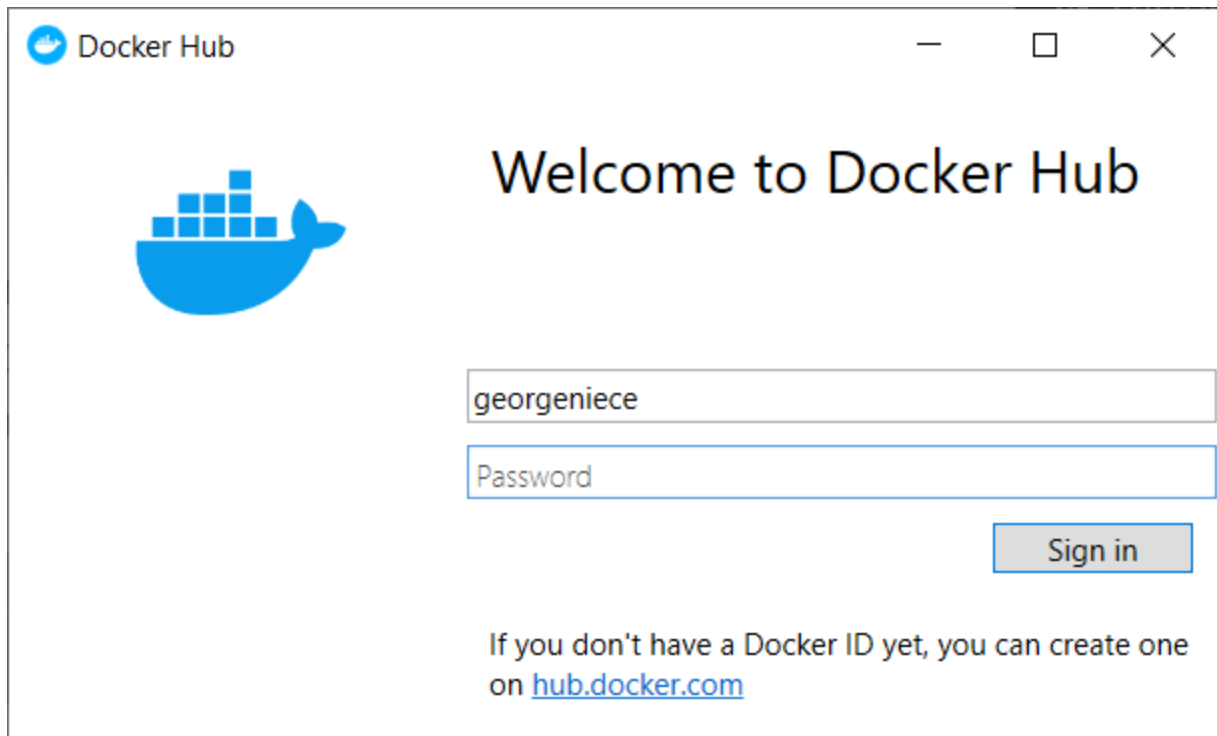
[Skip Tutorial](#)[Done](#)

```
host. All files and directories added to build
context will have '-rwxr-xr-x' permissions. I
t is recommended to double check and reset per
missions for sensitive files and directories.
PS C:\Users\wcsadmin\getting-started>
PS C:\Users\wcsadmin\getting-started>
PS C:\Users\wcsadmin\getting-started> cd getti
ng-started PS C:\Users\wcsadmin> git clone htt
ps://github
Set-Location : A positional parameter cannot
be found that accepts argument 'PS'.
At line:1 char:1
+ cd getting-started PS C:\Users\wcsadmin>
git clone https://github
+ ~~~~~
+ CategoryInfo          : InvalidArgumen
t: (:) [Set-Location], ParameterBindingE
xception
+ FullyQualifiedErrorId : PositionalPara
meterNotFound,Microsoft.PowerShell.Comma
nds.SetLocationCommand

PS C:\Users\wcsadmin\getting-started> .com/doc
ker/getting-started.gitPS C:\Users\wcsadmin> g
it clone https://github
>> .com/docker/getting-started.git^C
PS C:\Users\wcsadmin\getting-started> cd getti
ng-started ^C
PS C:\Users\wcsadmin\getting-started> docker
build -t docker101tutorial . docker run -d -p
80:80 --name docker-tutorial docker101tutorial

unknown shorthand flag: 'd' in -d
See 'docker build --help'.
PS C:\Users\wcsadmin\getting-started> docker r
un -d -p 80:80 --name docker-tutorial docker10
1tutorial
e5b72f602a04e81b4fe2fb3c797054f0948f645b018eb9
f9510d099d60e55822
PS C:\Users\wcsadmin\getting-started> 
```

Sign into your Docker Hub account, if you don't have one load hub.docker.com in a Web browser and create one.



That will update the screen for the next step in the quick start tutorial

Clone

Build

Run

4 Share

Now save and share your image

Save and share your image on Docker Hub to enable other users to easily download and run the image on any destination machine.

`docker tag docker101tutorial georgeniece/docker101tutorial`
`docker push georgeniece/docker101tutorial`

Click [here](#) to see the image you shared on Docker Hub.

Skip TutorialDone

```
host. All files and directories added to build
context will have '-rwxr-xr-x' permissions. I
t is recommended to double check and reset per
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PS C:\Users\wcsadmin\getting-started>
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PS C:\Users\wcsadmin\getting-started> .com/doc
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>> .com/docker/getting-started.git^C
PS C:\Users\wcsadmin\getting-started> cd getti
ng-started ^C
PS C:\Users\wcsadmin\getting-started> docker
build -t docker101tutorial . docker run -d -p
80:80 --name docker-tutorial docker101tutorial

unknown shorthand flag: 'd' in -d
See 'docker build --help'.
PS C:\Users\wcsadmin\getting-started> docker r
un -d -p 80:80 --name docker-tutorial docker10
1tutorial
e5b72f602a04e81b4fe2fb3c797054f0948f645b018eb9
f9510d099d60e55822
PS C:\Users\wcsadmin\getting-started> 
```

Click the Command Button to tag our tutorial image and push to Docker Hub.

```
## Tag our tutorial image, substituting your own Docker Hub Repo
```

```
PS C:\projects\getting-started> docker tag docker101tutorial  
georgeniece/docker101tutorial
```

```
PS C:\projects\getting-started> docker push georgeniece/docker101tutorial
```

The push refers to repository [docker.io/georgeniece/docker101tutorial]

After the push completes we can check the status of the docker tutorial container we started with docker ps command

```
## Find our Tutorial container
```

```
PS C:\Users\wcsadmin\getting-started> docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED
STATUS			
PORTS			
NAMES			
e5b72f602a04	docker101tutorial	"/docker-entryptpoint..."	13 minutes ago
13 minutes	0.0.0.0:80->80/tcp	docker-tutorial	Up

If we open a web browser to <https://hub.docker.com/repositories> we'll see the image under the repo we just created.

View our tutorial in a web browser by loading <http://localhost/tutorial/>

As the saying goes, the jobs not done until the cleanup is complete.

```
## Find our Tutorial container
```

```
C:\projects>docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED
STATUS			
PORTS			
NAMES			
4899db42c740	kindest/node:v1.18.2	"/usr/local/bin/entr..."	4 hours ago
hours	127.0.0.1:51089->6443/tcp	kind-control-plane	Up 4

e5b72f602a04	docker101tutorial	"/docker-entrypoin...."	4 hours ago	Up 4
hours	0.0.0.0:80->80/tcp	docker-tutorial		

C:\projects>**docker stop e5b72f602a04**
e5b72f602a04

Remove the stopped tutorial container

C:\projects>**docker rm e5b72f602a04**
e5b72f602a04

Make sure it's gone for good

C:\projects>**docker ps -a**

CONTAINER ID	IMAGE	COMMAND	CREATED	
STATUS	PORTS	NAMES		
4899db42c740	kindest/node:v1.18.2	"/usr/local/bin/entr..."	4 hours ago	Up 4
hours	127.0.0.1:51089->6443/tcp	kind-control-plane		

C:\projects>