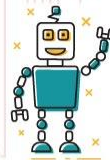


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Installation Guide of DFI Dev kits for OpenVINO

DFI

July 2022



ABOUT THE DOCUMENT

This installation guide is for
OpenVINO DevCup only.

Please follow these steps strictly.

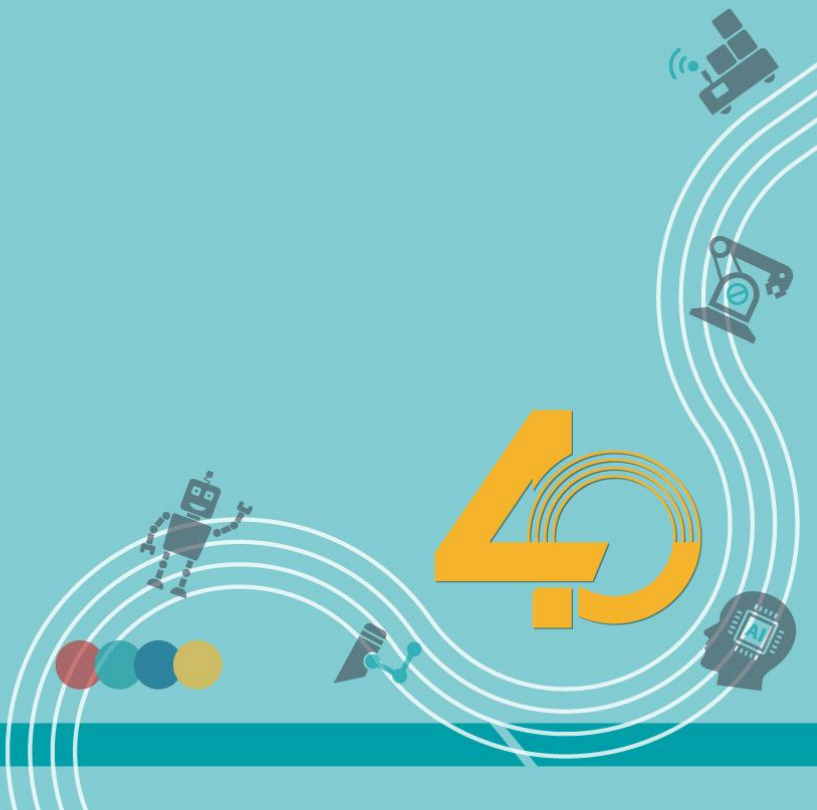


CONTENT

1. Before Installation
2. Install Ubuntu
3. Install Demo kits
4. Run Demo kits
5. Software Repositories



BEFORE INSTALLATION

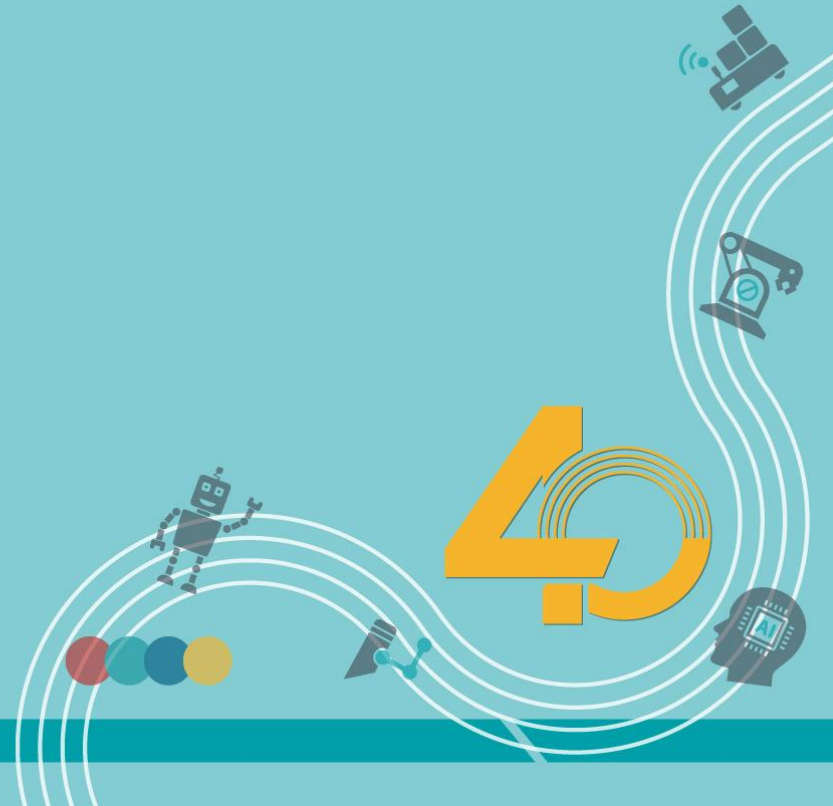


Please get these things ready

- Make sure the hardware kit is well-connected to internet.
- Prepare an Ubuntu stick by this [tutorial](#).
- Plug in the Ubuntu stick ([version 20.04](#)) before installation.

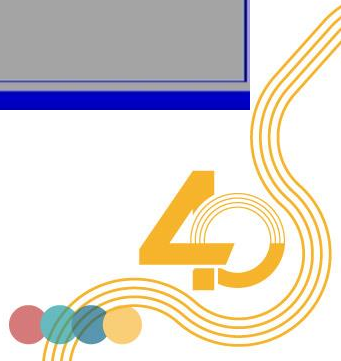
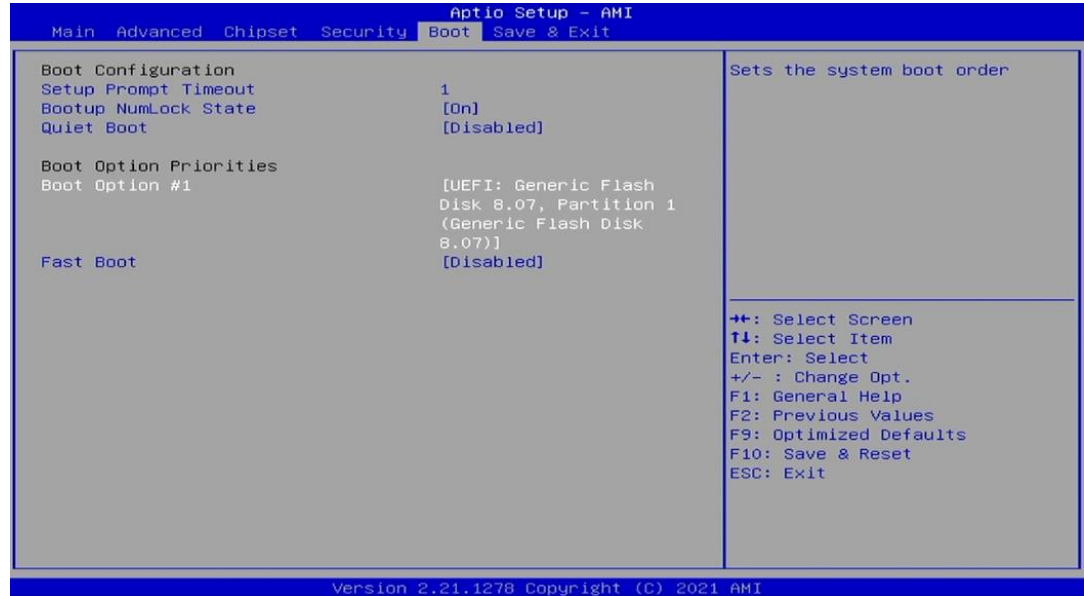


INSTALL UBUNTU



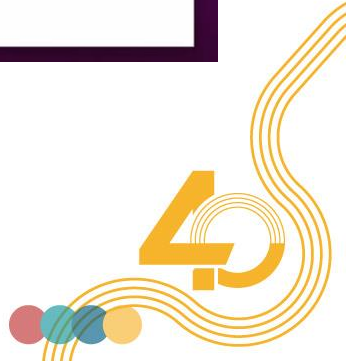
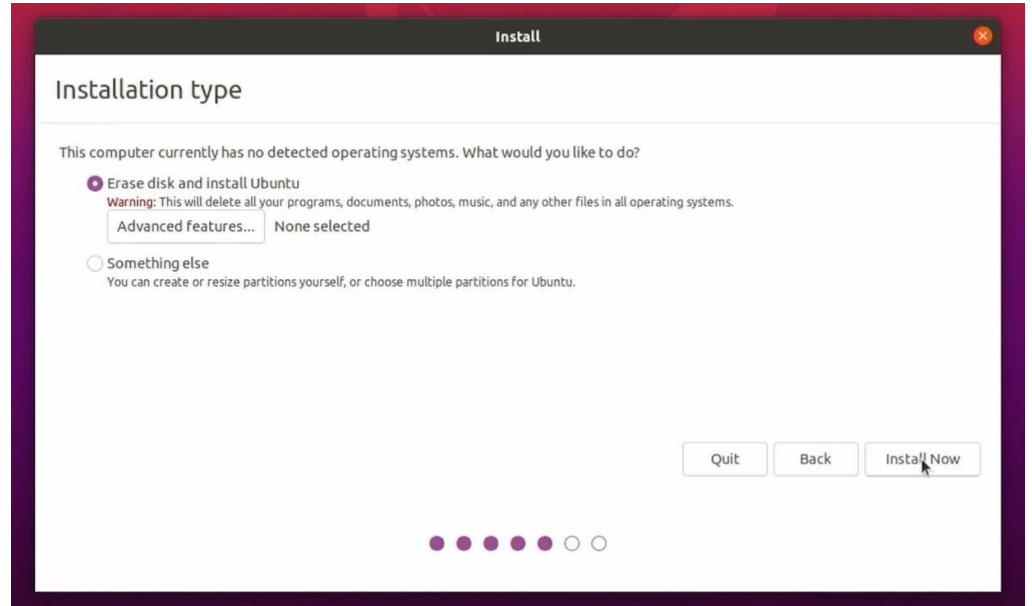
BIOS Settings

- Press “Del” button while booting, enter BIOS screen to ensure that the Ubuntu stick is in the first priority.



Install Ubuntu

- At the “Installation type” screen, select “Erase disk and install Ubuntu”

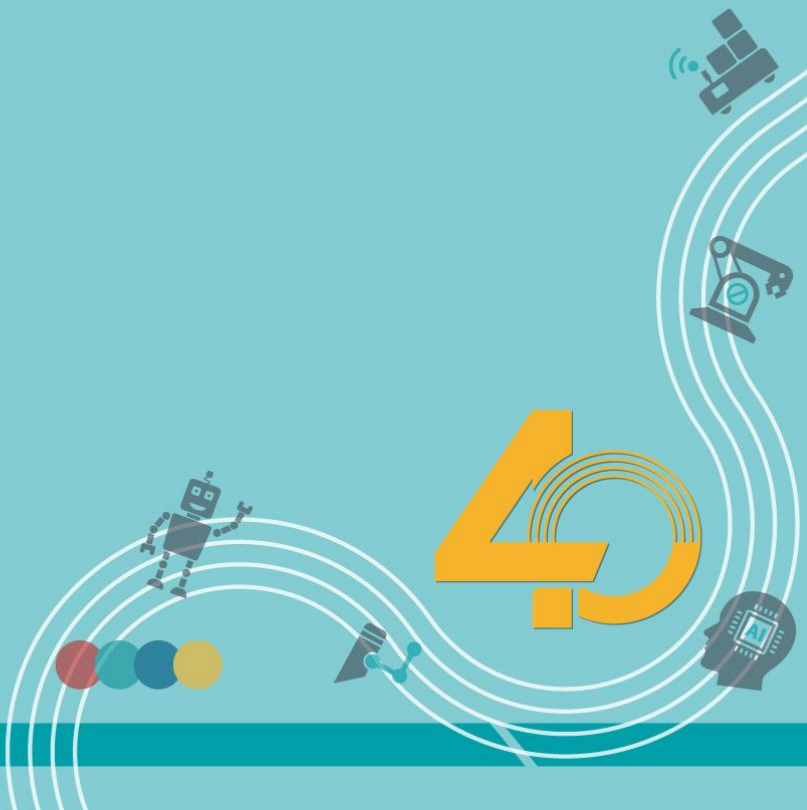


Running and Done

- Ubuntu is successfully installed. No additional drivers are required.



INSTALL DEMO KITS



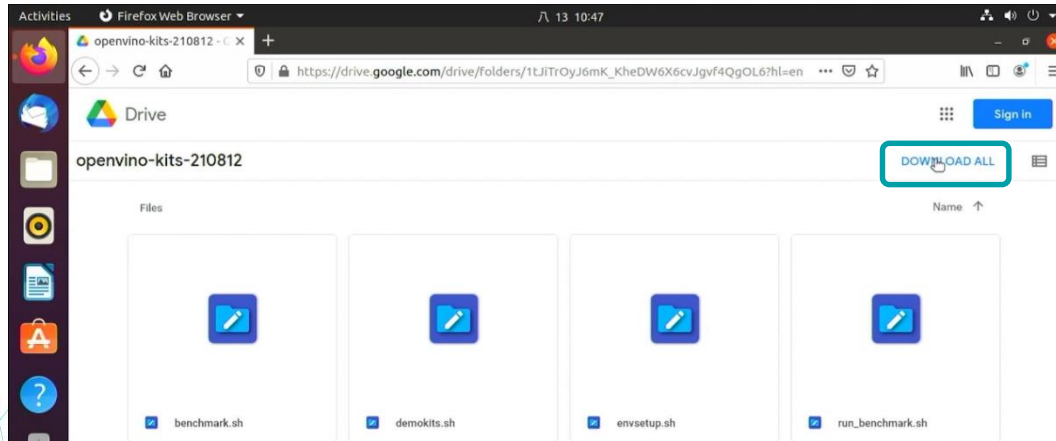
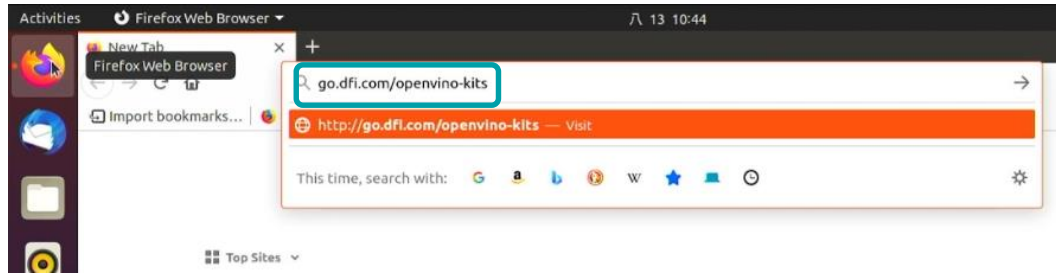
NOTICE

1. Please strictly follow the sequence.
2. Make sure internet connection is stable.



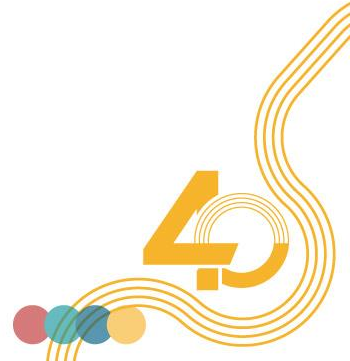
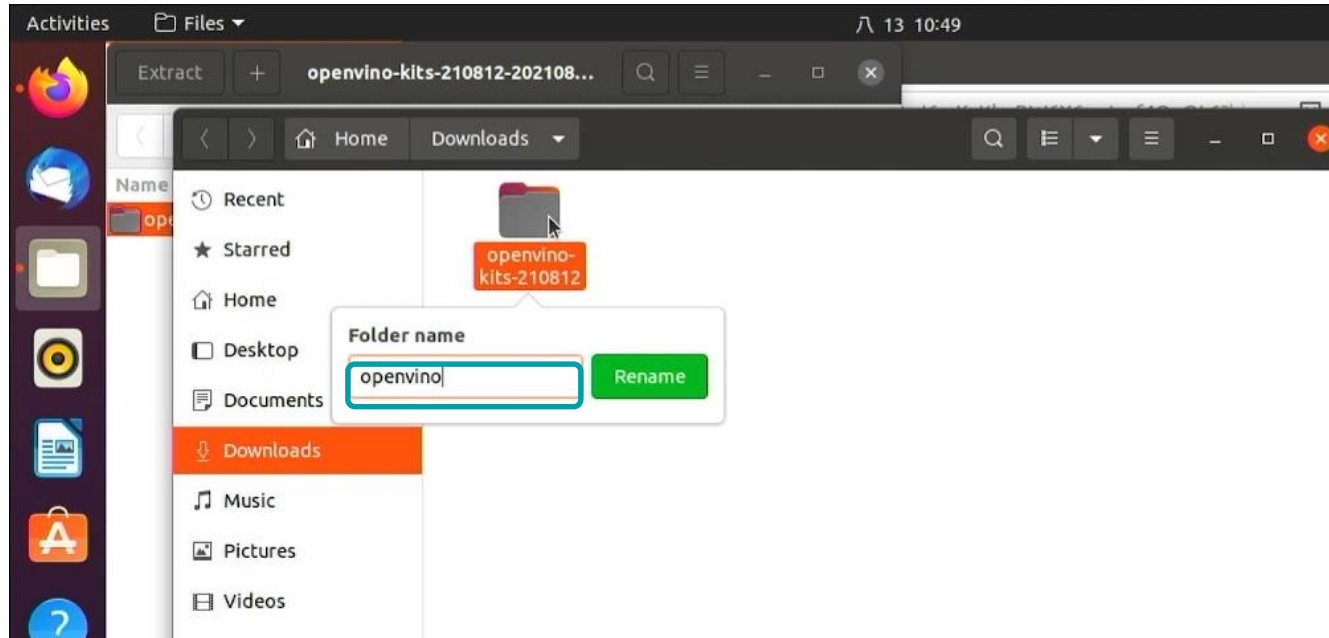
Download Demo kit Scripts

- Go to <https://go.dfi.com/opencvino-kits> to download all files



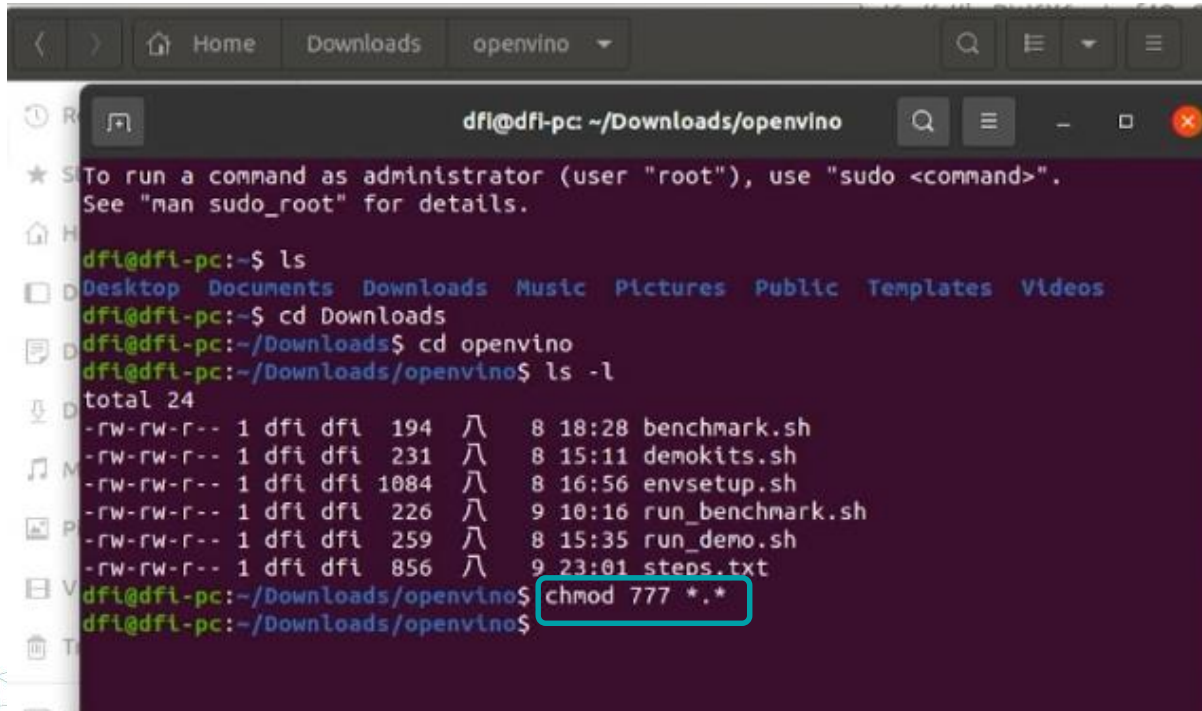
Rename the folder

- Go to “Downloads” and rename the downloaded folder into “openvino”

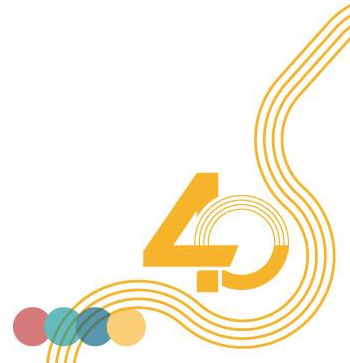


Grant the permission

- Open the terminal in the folder where scripts located, then type “`chmod 777 *.*`”



```
dfi@dfi-pc: ~/Downloads/opencvino
dfi@dfi-pc:~$ ls
Desktop Documents Downloads Music Pictures Public Templates Videos
dfi@dfi-pc:~$ cd Downloads
dfi@dfi-pc:~/Downloads$ cd opencvino
dfi@dfi-pc:~/Downloads/opencvino$ ls -l
total 24
-rw-rw-r-- 1 dfi dfi 194  8 18:28 benchmark.sh
-rw-rw-r-- 1 dfi dfi 231  8 15:11 demokits.sh
-rw-rw-r-- 1 dfi dfi 1084  8 16:56 envsetup.sh
-rw-rw-r-- 1 dfi dfi 226  9 10:16 run_benchmark.sh
-rw-rw-r-- 1 dfi dfi 259  8 15:35 run_demo.sh
-rw-rw-r-- 1 dfi dfi 856  9 23:01 steps.txt
dfi@dfi-pc:~/Downloads/opencvino$ chmod 777 *.*
dfi@dfi-pc:~/Downloads/opencvino$
```

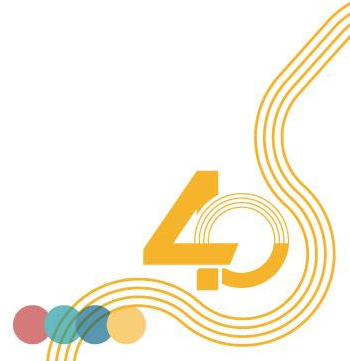


Set up the environment

- Run “./envsetup.sh”

```
dfi@dfi-pc: ~/Downloads/opencvino
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

dfi@dfi-pc:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos
dfi@dfi-pc:~$ cd Downloads
dfi@dfi-pc:~/Downloads$ cd opencvino
dfi@dfi-pc:~/Downloads/opencvino$ ls -l
total 24
-rw-rw-r-- 1 dfi dfi 194  \  8 18:28 benchmark.sh
-rw-rw-r-- 1 dfi dfi 231  \  8 15:11 demokits.sh
-rw-rw-r-- 1 dfi dfi 1084 \  8 16:56 envsetup.sh
-rw-rw-r-- 1 dfi dfi 226  \  9 10:16 run_benchmark.sh
-rw-rw-r-- 1 dfi dfi 259  \  8 15:35 run_demo.sh
-rw-rw-r-- 1 dfi dfi 856  \  9 23:01 steps.txt
dfi@dfi-pc:~/Downloads/opencvino$ chmod 777 *
dfi@dfi-pc:~/Downloads/opencvino$ ./envsetup.sh
[sudo] password for dfi:
0% [Working]
```



Set up the environment

- After the setup is finish, system will automatically reboot.

```
dfi@dfi-pc: ~/Downloads/opencvino
Version:      0.19.0
GitCommit:   de40ad0

=====

To run Docker as a non-privileged user, consider setting up the
Docker daemon in rootless mode for your user:

    dockerd-rootless-setuptool.sh install

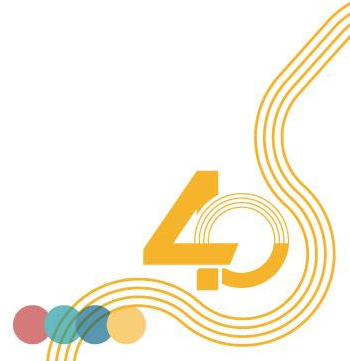
Visit https://docs.docker.com/go/rootless/ to learn about rootless mode.

To run the Docker daemon as a fully privileged service, but granting non-root
users access, refer to https://docs.docker.com/go/daemon-access/

WARNING: Access to the remote API on a privileged Docker daemon is equivalent
to root access on the host. Refer to the 'Docker daemon attack surface'
documentation for details: https://docs.docker.com/go/attack-surface/

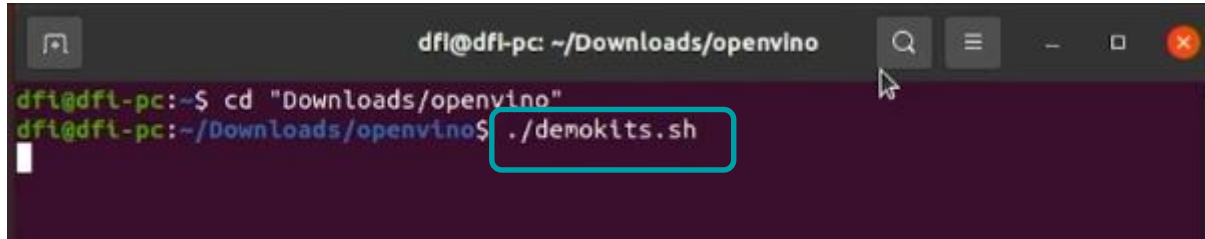
=====

Rebooting.
```



Download necessary files

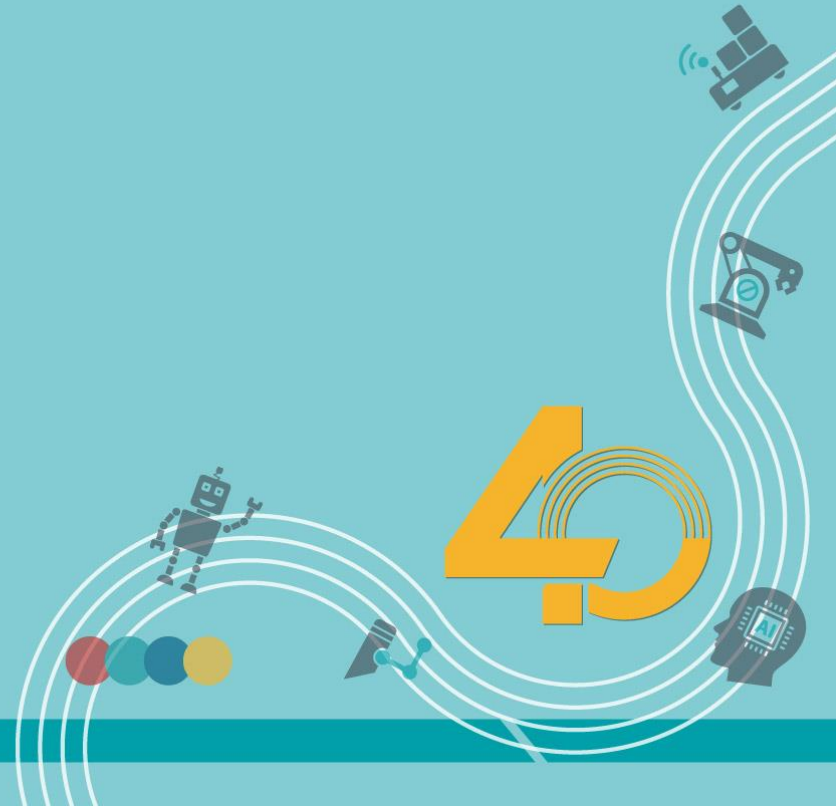
- Run “./demokits.sh”, wait for it to finish.

A terminal window with a dark purple background. The title bar shows 'dfi@dfi-pc: ~/Downloads/opencvino'. The terminal content shows the command 'cd "Downloads/opencvino"' followed by './demokits.sh', which is highlighted with a red rectangular box. The cursor is positioned at the end of the second line.

```
dfi@dfi-pc: ~/Downloads/opencvino
dfi@dfi-pc:~$ cd "Downloads/opencvino"
dfi@dfi-pc:~/Downloads/opencvino$ ./demokits.sh
```



RUN DEMO KITS



Run the demo

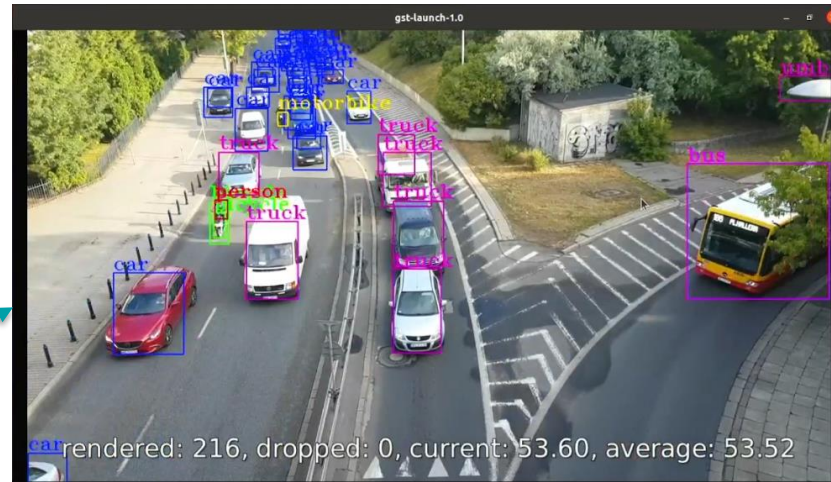
- Run “./run_demo.sh”, and then wait for the demo to begin

```
dfi@dfi-pc: ~/Downloads/openvino
docker.io/dfiswbeavis/openvino:2021.3_developer_models
--2021-08-13 10:55:16-- https://github.com/incluit/OpenVino-For-SmartCity/raw/master/data/NewVideo2.mp4
Resolving github.com (github.com)... 52.69.186.44
Connecting to github.com (github.com)[52.69.186.44]:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://raw.githubusercontent.com/incluit/OpenVino-For-SmartCity/master/data/NewVideo2.mp4 [following]
--2021-08-13 10:55:16-- https://raw.githubusercontent.com/incluit/OpenVino-For-SmartCity/master/data/NewVideo2.mp4
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.110.133, 185.199.108.133, 185.199.111.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)[185.199.110.133]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 12914374 (12M) [application/octet-stream]
Saving to: '/home/dfi/Downloads/NewVideo2.mp4'

/home/dfi/Downloads 100%[=====] 12.32M 17.0MB/s in 0.7s

2021-08-13 10:55:18 (17.0 MB/s) - '/home/dfi/Downloads/NewVideo2.mp4' saved [12914374/12914374]

dfi@dfi-pc:~/Downloads/openvino$ ./run_demo.sh
```



Prepare for the benchmark

- Run “./run_benchmark.sh”, and enter the docker.

```
dfi@dfi-pc:~/Downloads/opencvino$ ./run_benchmark.sh
groups: cannot find name for group ID 100
error: XDG_RUNTIME_DIR not set in the environment.
[setupvars.sh] OpenVINO environment initialized
opencvino@89ef113acff6:/opt/intel/opencvino_2021.3.394$
```



Run the benchmark

- Run “/mnt/**xxxxxx**/benchmark.sh”, and execute the benchmark.
- **xxxxxx** is the folder name contains “run_benchmark.sh”.
- Please wait for the benchmark to finish.

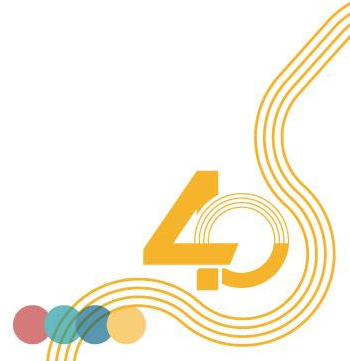
```
df1@df1-pc:~/Downloads/opencvino$ ./run_benchmark.sh
groups: cannot find name for group ID 109
error: XDG_RUNTIME_DIR not set in the environment.
[setupvars.sh] OpenVINO environment initialized
opencvino@89ef113acff6:/opt/intel/opencvino_2021.3.394$ /mnt/opencvino/benchmark.sh
```



Get the benchmark results

- After the benchmark is done, the results are revealed at the bottom.

```
openvino@89ef113acff6: /opt/intel/openvino_2021.3.394
[Step 7/11] Loading the model to the device
[ INFO ] Load network took 38739.58 ms
[Step 8/11] Setting optimal runtime parameters
[Step 9/11] Creating infer requests and filling input blobs with images
[ INFO ] Network input 'input_1' precision U8, dimensions (NCHW): 1 3 416 416
[ WARNING ] No input files were given: all inputs will be filled with random values!
[ INFO ] Infer Request 0 filling
[ INFO ] Fill input 'input_1' with random values (image is expected)
[ INFO ] Infer Request 1 filling
[ INFO ] Fill input 'input_1' with random values (image is expected)
[ INFO ] Infer Request 2 filling
[ INFO ] Fill input 'input_1' with random values (image is expected)
[ INFO ] Infer Request 3 filling
[ INFO ] Fill input 'input_1' with random values (image is expected)
[Step 10/11] Measuring performance (Start inference asynchronously, 4 inference requests using 2 streams for GPU, limits: 60000 ms duration)
[ INFO ] First inference took 21.35 ms
[Step 11/11] Dumping statistics report
Count:      3316 iterations
Duration:   60136.73 ms
Latency:    73.44 ms
Throughput: 55.14 FPS
openvino@89ef113acff6: /opt/intel/openvino_2021.3.394
```



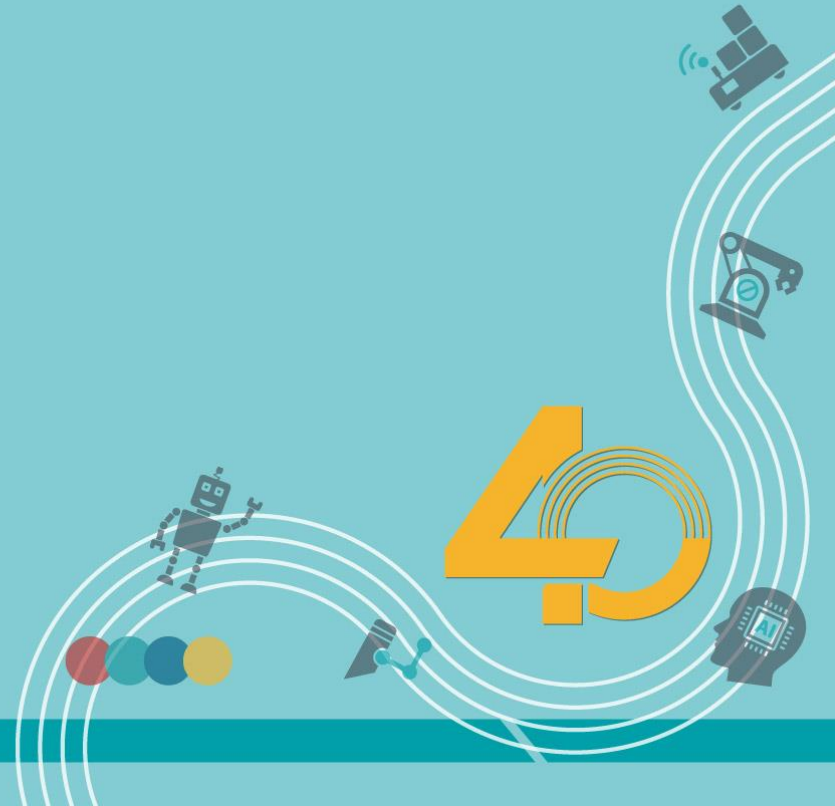
Installation Video

- More details of the installation process can be found in the installation video:

<https://youtu.be/60fFybYJsbl>



SOFTWARE REPOSITORY



Try interesting applications

- Go grab some [Software Packages](#) based on edge use cases to inspire more ideas.

Edge Use Cases
Explore some real-world applications of the Intel® Edge Software Hub and download a reference implementation to start a sample application.

[View all reference implementations →](#)

- Multicamera Detection of Social Distancing**
Calculate social distance between customers from multiple input feeds. Help to prevent the spread of disease by using computer vision inference in the Intel® Distribution of OpenVINO™ toolkit to measure the distance between people and store data for analysis.
[Download reference implementation →](#)
- Universal Wellpad Controller**
Securely and economically monitor and control onshore production wells and surface production facilities. Streamline operations and perform analytics at the edge to reduce network overloads by replacing multiple single-function devices with a single Universal Wellpad Controller and integrating the latest software.
[Download reference implementation →](#)
- Intelligent Traffic Management**
Detect and track vehicles, motorcyclists, bicyclists and pedestrians at traffic intersections to improve safety. Analyze video data to optimize traffic flow in near-real time, detect collisions and near-misses, and identify high-risk intersections.
[Download reference implementation →](#)
- Contactless Shopping**
Improve social distancing while shopping with an automated grab-and-go checkout experience. Computer vision and other sensors detect when products are removed from a cooler or cabinet.
[Download reference implementation →](#)

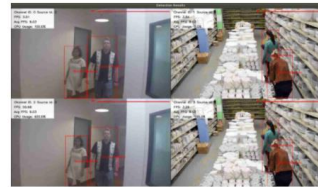
Edge Software Hub / Multi-Camera Detection of Social Distancing / Documentation

Overview

Social distancing and face masks are one of the most effective nonpharmaceutical ways to prevent the spread of disease. This reference implementation gives a solution to prevent the spread of disease by using computer vision inference in the Intel® Distribution of OpenVINO™ toolkit to measure distance between people and store data to InfluxDB. This data can be visualized on a Grafana® dashboard.

The reference implementation and the software listed below are installed when selected as part of the Edge Insights for Vision package. If you have not installed that package yet, select [Configure & Download](#) to download the reference implementation and then follow the installation instructions for Edge Insights for Vision.

[Configure & Download](#)



Time to Complete

50 - 70 minutes

Programming

Python® 3.6



DFI

Thank you

