# How to Install CPU-only Milvus in minutes

## Prerequisites

### Operating system requirements

| Operating system | Supported versions |
| --- | --- |
| CentOS | 7.5 or higher |
| Ubuntu LTS | 18.04 or higher |
| Windows | Windows 10 64-bit: Pro, Enterprise, or Education (Build 15063 or later) |
| macOS | 10.13 or higher |

### Hardware requirements

| Component | Recommended configuration |
| --- | --- |
| CPU | Intel CPU Sandy Bridge or higher. |
| CPU instruction set | SSE42 / AVX / AVX2 / AVX512 |
| RAM | 8 GB or more (depends on the data volume) |
| Hard drive | SATA 3.0 SSD or higher |

## Install Docker

- If you're using Ubuntu or CentOS, Install Docker 19.03 or higher on your local host machine.
- If you're installing Milvus on Windows, install Docker Desktop, and make certain configurations in **Settings > Advanced**. Make sure the Memory available to Docker Engine exceeds the sum of `insert_buffer_size` and `cpu_cache_capacity` you set in the `server_config.yaml` file.
- If you're installing Milvus on macOS, install Docker Desktop for Mac, and make certain configurations in **Settings > Advanced**. Make sure the Memory available to Docker Engine exceeds the sum of `insert_buffer_size` and `cpu_cache_capacity` you set in the `server_config.yaml` file.

## Confirm Docker status

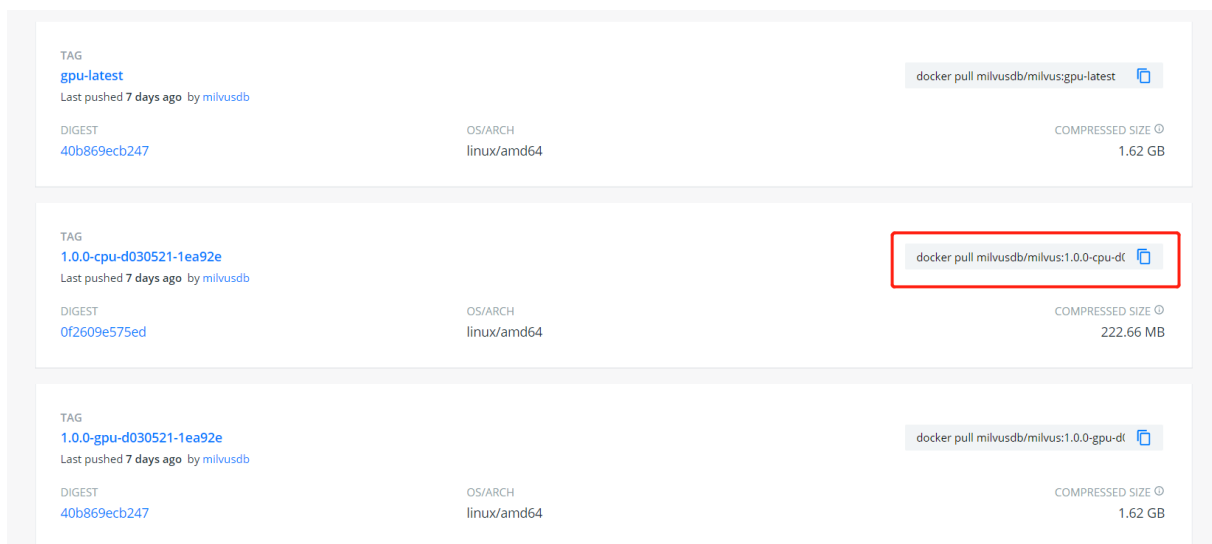Confirm that the Docker daemon is running in the background:

```
1  $ docker info
```

If you do not see the server listed, start the **Docker** daemon.

> Note: On Linux, Docker needs sudo privileges. To run Docker command without `sudo`, create the `docker` group and add your user. For details, see the post-installation steps for Linux.

## Select Milvus version from Docker hub

Go to dockerhub, ensure which version of milvus are you going to install. Click the copy button. Full docker pull command will be copied.



**Figure 1:** dockerhub-milvus

## Pull Milvus Image

Paste the command in your console window

```
1  $ docker pull milvusdb/milvus:1.0.0-cpu-d030521-1ea92e
```

## Create Milvus directories

Create 4 directories for milvus, we will mount these directories into the container later, you can place these folder anywhere, now, we put it at home directory.

- db: vectors will be stored in this directory
- logs: any milvus running logs will be here
- wal: wal will be stored in this directory
- conf: configuration files will be stored in this directory

```
1  $ mkdir -p /home/$USER/milvus/db
2  $ mkdir -p /home/$USER/milvus/logs
3  $ mkdir -p /home/$USER/milvus/wal
4  $ mkdir -p /home/$USER/milvus/conf
```

## Download configuration files

Download the standard milvus configuration file, place it in the conf directory you just created.

```
1  $ cd /home/$USER/milvus/conf
2  $ wget https://raw.githubusercontent.com/milvus-io/milvus/v1.0.0/core/
     conf/demo/server_config.yaml
```
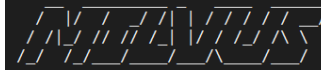
> Note: In case you encounter problems downloading configuration files using `wget` command, you can also create `server_config.yaml` under `/home/$USER/milvus/conf`, then copy and paste the content from server config file.

## Start Milvus

Run the docker that we just pulled. We will map the ports and mounts directories we just created.

- Milvus default port is 19530
- Milvus default http port is 19121

```
1  $ docker run --name milvus_cpu_1.0.0 \
2  -p 19530:19530 \
3  -p 19121:19121 \
4  -v /home/$USER/milvus/db:/var/lib/milvus/db \
5  -v /home/$USER/milvus/conf:/var/lib/milvus/conf \
6  -v /home/$USER/milvus/logs:/var/lib/milvus/logs \
7  -v /home/$USER/milvus/wal:/var/lib/milvus/wal \
8  milvusdb/milvus:1.0.0-cpu-d030521-1ea92e
```

```
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```

Welcome to use Milvus!
Milvus Release version: v1.0.0, built at 2021-03-04 06:43.00, with OpenBLAS library.
You are using Milvus CPU edition
Last commit id: 21ea92ec7e57ab00cca671d74195c4eaa81869a2

Loading configuration from: /var/lib/milvus/conf/server_config.yaml
WARNNING: You are using SQLite as the meta data management, which can't be used in product
Supported CPU instruction sets: avx512, avx2, sse4_2
FAISS hook AVX512
Milvus server started successfully!

You can see someting like this, and we are done

If you want run milvus in the background, add option '-d'

```
1  $ docker run -d --name milvus_cpu_1.0.0 \
2  -p 19530:19530 \
3  -p 19121:19121 \
4  -v /home/$USER/milvus/db:/var/lib/milvus/db \
5  -v /home/$USER/milvus/conf:/var/lib/milvus/conf \
6  -v /home/$USER/milvus/logs:/var/lib/milvus/logs \
7  -v /home/$USER/milvus/wal:/var/lib/milvus/wal \
8  milvusdb/milvus:1.0.0-cpu-d030521-1ea92e
```

**Next**

- You can Try an example program
- Learn more about milvus
- Give milvus a star if you like it