

# AskBob – Deployment Guide for Windows 10

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This deployment guide is associated with the **AskBob** repository found at the following link: <https://github.com/UCL-COMP0016-2020-Team-39/AskBob>

All information related to configuration, testing and documentation, along with more detailed information about installation on different platforms is contained in the **user manual**.

**AskBob** is a customisable framework for developing federated, privacy-safe voice assistants designed to be operated both: within IBM's FISE ecosystem, aiming to combat social isolation, as a server integrated into the projects of teams 25 (conciierge) and 38 (video conferencing); and interactively standalone on compatible low-power Windows and Linux desktop devices on which speech and data processing is performed locally to help safeguard users' privacy.

Its modular plugin architecture allows for voice assistant capabilities to be extended via additional third-party [skills plugins](#) installable at build-time, e.g. by interfacing with external services. Ask Bob is also accompanied with a React [configuration generator web app](#) to aid non-experts in designing new plugins and a [skills viewer](#) web app to inspect plugins installed on Ask Bob servers. These applications have their own separate user and deployment manuals.

**AskBob** has two primary modes of use:

- interactive mode (where users can interact directly with the voice assistant and hear audible responses)
- server mode (where **AskBob** acts as a server responding to API calls)
  - There is also an additional "voice-enabled" server option, which allows users to upload WAV files for **AskBob** to transcribe and interpret.

When **AskBob** is installed locally on your system, both modes are available with proper configuration; however, only server mode (whether voiceless or voice-enabled) is available through Docker.

**AskBob** was originally designed for **Linux**; however, it is usually possible to get **AskBob** to run on **Windows**, for example, on an Intel Core i3-based **NUC device** running **Windows 10**.

For installing **AskBob** on an Intel Core i3-based **NUC device**, follow instructions for installation and use on Windows.

If you come across an error during installation, as may be possible when installing dependencies based on machine learning sometimes, check the more detailed **user manual** to see steps to resolve the issue have been included there.

## AskBob Command Reference

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```
1 $ python -m askbob --help
2 usage: __main__.py [-h] [-c CONFIG] [-w SAVEPATH] [-f FILE] [-d DEVICE]
3                   [-r RATE] [-s] [-v] [--setup [SETUP]]
4
5 **AskBob**: a customisable voice assistant.
6
7 optional arguments:
8   -h, --help            show this help message and exit
```

```

9   -c CONFIG, --config CONFIG
10                          The configuration file.
11   -w SAVEPATH, --savepath SAVEPATH
12                          Save .wav files of utterances to a given directory.
13   -f FILE, --file FILE   Read from a .wav file instead of the microphone.
14   -d DEVICE, --device DEVICE
15                          The device input index (int) as given by
16                          pyaudio.PyAudio.get_device_info_by_index(). Default:
17                          pyaudio.PyAudio.get_default_device().
18   -r RATE, --rate RATE   The input device sample rate (your device might
19                          require 44100Hz). Default: 16000.
20   -s, --serve            Run AskBob as a server instead of interactively.
21   -v, --voice            Enable speech transcription in server mode.
22   --setup [SETUP]       Setup AskBob from the configuration JSON file
23                          provided.

```

## Local use – Windows (voiceless server mode)

### Simplified

1. First, ensure you have [Python 3.7](#) and `pip` installed on your system and added to the Windows PATH (this will have been a checkbox in the installer).
2. Then, copy the AskBob demo project folder, `examples/demo` in our repository (<https://github.com/UCL-COMP0016-2020-Team-39/AskBob/tree/main/examples/demo>), to a location on your system where you would like to run **AskBob**.
3. Copy `scripts/install_voiceless_server.bat` into the root of your copy of the **AskBob** demo project folder from step 2 and run the batch file (either by double clicking it or by typing `./install_voiceless_server.bat` into the command prompt, PowerShell or GitBash if you have it installed).
4. Launch AskBob in voiceless server mode using the following command from that directory:

```
1 python -m askbob -s
```

### Advanced

1. First, ensure you have [Python 3.7](#) and `pip` installed on your system and added to the Windows PATH (this will have been a checkbox in the installer).
2. Then, copy the AskBob demo project folder, `examples/demo` in our repository (<https://github.com/UCL-COMP0016-2020-Team-39/AskBob/tree/main/examples/demo>), to a location on your system where you would like to run **AskBob**.
3. Next, ensure that your versions of `pip`, `setuptools` and `wheel` are up to date and install the **AskBob** base using the following command:

```
1 python -m pip install -U pip setuptools wheel askbob
```

You may be prompted to type the word “yes” to confirm installation.

4. Once that is done, install the `en_core_web_md` SpaCy model using the following command:

```
1 python -m spacy download en_core_web_md
```

5. Train **AskBob** using the following command:

```
1 python -m askbob --setup
```

6. Launch AskBob in voiceless server mode using the following command:

```
1 python -m askbob -s
```

## Local use – Windows (voice-enabled server mode)

### Simplified

1. First, ensure you have [Python 3.7](#) and `pip` installed on your system and added to the Windows PATH (this will have been a checkbox in the installer).
2. Then, copy the AskBob demo project folder, `examples/demo` in our repository (<https://github.com/UCL-COMP0016-2020-Team-39/AskBob/tree/main/examples/demo>), to a location on your system where you would like to run **AskBob**.
3. Copy `scripts/install_voice_server.ps1` into the root of your copy of the **AskBob** demo project folder from step 2 and run the PowerShell file by right clicking it and selecting “Run with PowerShell”. You may be prompted to type the word “yes” to initiate installation.
4. Launch AskBob in voice-enabled server mode using the following command from that directory:

```
1 python -m askbob -s -v
```

### Advanced

1. First, ensure you have [Python 3.7](#) and `pip` installed on your system and added to the Windows PATH (this will have been a checkbox in the installer).
2. Then, copy the AskBob demo project folder, `examples/demo` in our repository (<https://github.com/UCL-COMP0016-2020-Team-39/AskBob/tree/main/examples/demo>), to a location on your system where you would like to run **AskBob**.
3. Next, ensure that your versions of `pip`, `setuptools` and `wheel` are up to date and install the **AskBob** base using the following command:

```
1 python -m pip install -U pip setuptools wheel askbob[voice]
```

You may be prompted to type the word “yes” to confirm installation.

4. Once that is done, install the `en_core_web_md` SpaCy model using the following command:

```
1 python -m spacy download en_core_web_md
```

5. Train **AskBob** using the following command:

```
1 python -m askbob --setup
```

6. Download the pretrained English model and external scorer from the DeepSpeech repository (<https://github.com/mozilla/DeepSpeech/releases/tag/v0.9.1>) into the data folder created by the script in step 5 by the setup utility.

**Model:** <https://github.com/mozilla/DeepSpeech/releases/download/v0.9.1/deepspeech-0.9.1-models.pbmm>

**External scorer:** <https://github.com/mozilla/DeepSpeech/releases/download/v0.9.1/deepspeech-0.9.1-models.scorer>

You may have to update the filenames of these models in the `config.ini` file.

7. Launch AskBob in voiceless server mode using the following command:

```
1 python -m askbob -s -v
```

## Local use – Windows (interactive mode)

### Simplified

1. First, ensure you have [Python 3.7](#) (64-bit) and `pip` installed on your system and added to the Windows PATH (this will have been a checkbox in the installer).
2. Installing **AskBob** for interactive mode use on Windows requires additional compilation. To do this, [Build tools for Visual Studio 2019](#) installed on your system. A direct download link may be found here: <https://visualstudio.microsoft.com/thank-you-downloading-visual-studio/?sku=BuildTools&rel=16>. You may have to restart your computer after this step.
3. Then, copy the AskBob demo project folder, `examples/demo` in our repository (<https://github.com/UCL-COMP0016-2020-Team-39/AskBob/tree/main/examples/demo>), to a location on your system where you would like to run **AskBob**.
4. Copy `scripts/install_interactive.ps1` into the root of your copy of the **AskBob** demo project folder from step 3 and run the PowerShell file by right clicking it and selecting “Run with PowerShell”. You may be prompted to type the word “yes” to initiate installation. (This step will also install additional pyaudio and portaudio binaries needed on Windows for 64-bit Python 3.7.)
5. Launch AskBob in interactive mode using the following command from that directory (in PowerShell, the command line or GitBash if you have that installed):

```
1 python -m askbob
```

### Advanced

Advanced installation instructions are available in the user manual.

## Docker use – Windows (server modes only)

### Installation of WSL2

You must have the Windows Subsystem for Linux, version 2 installed on your system.

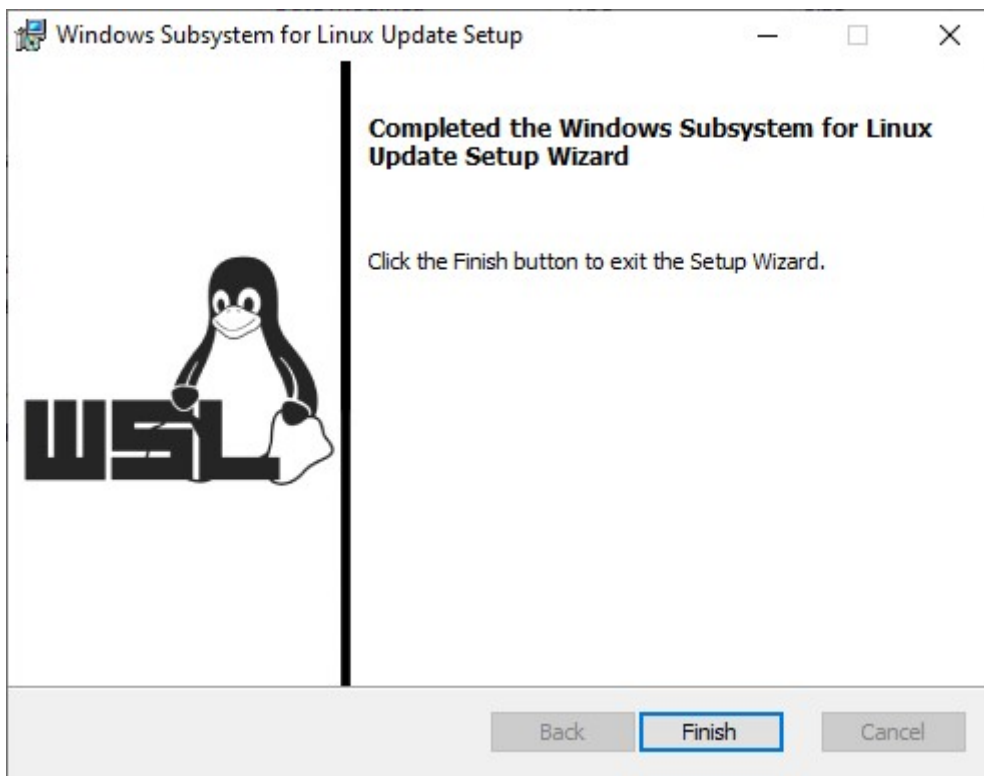
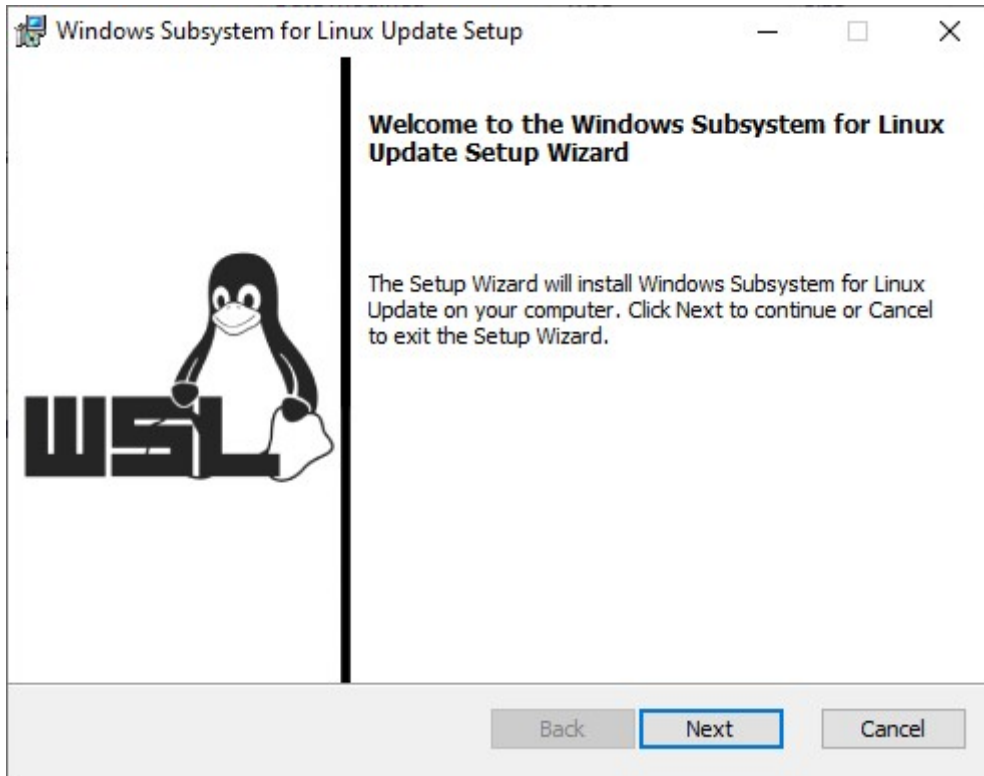
Instructions from Microsoft to do so may be found at the following link: <https://docs.microsoft.com/en-us/windows/wsl/install-win10>

To facilitate installation, we have also placed some of the commands in batch scripts.

1. Execute the batch script `scripts/install_wsl/install_1.bat` by right clicking it and selecting “Run as administrator”.
2. Restart your computer

3. Install the WSL2 kernel update downloadable from this link:

[https://wslstorestorage.blob.core.windows.net/wslblob/wsl\\_update\\_x64.msi](https://wslstorestorage.blob.core.windows.net/wslblob/wsl_update_x64.msi)

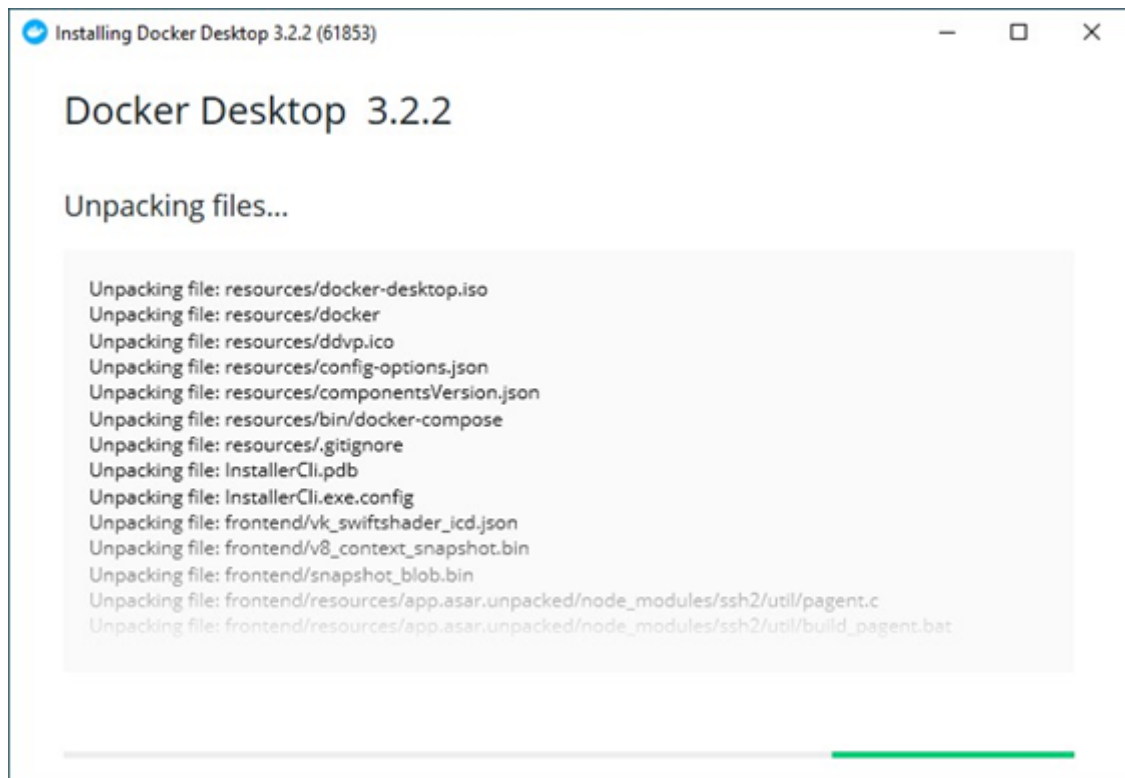
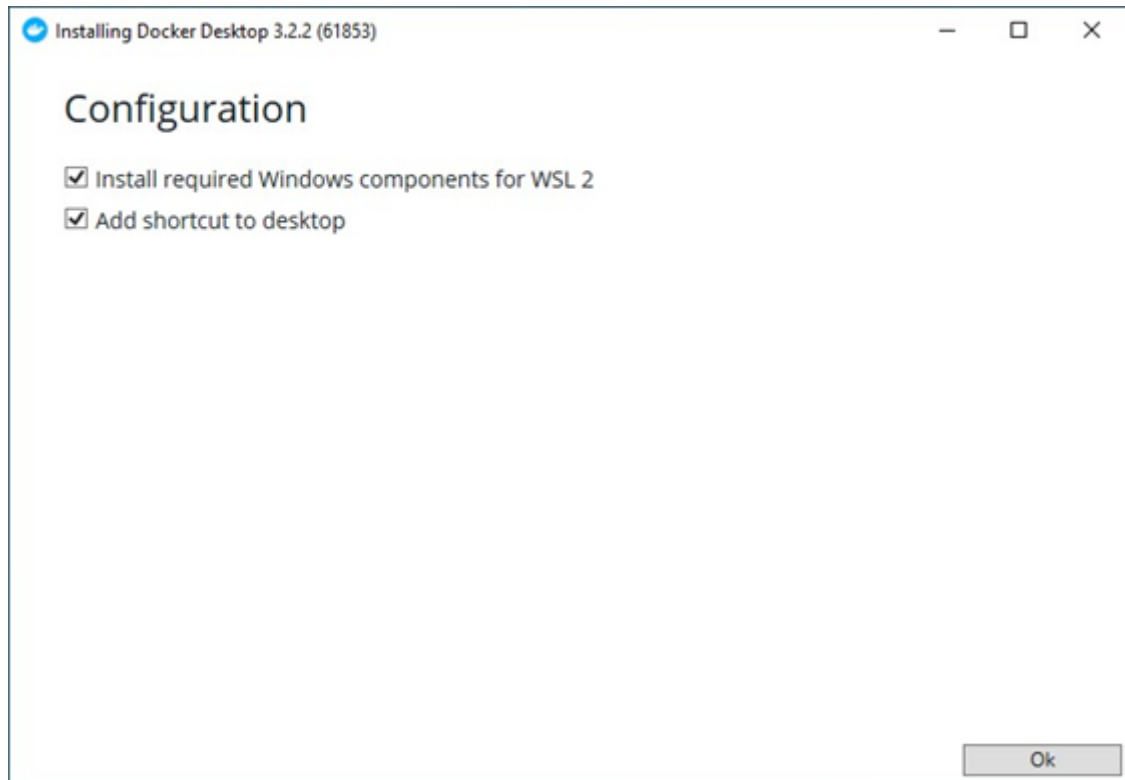


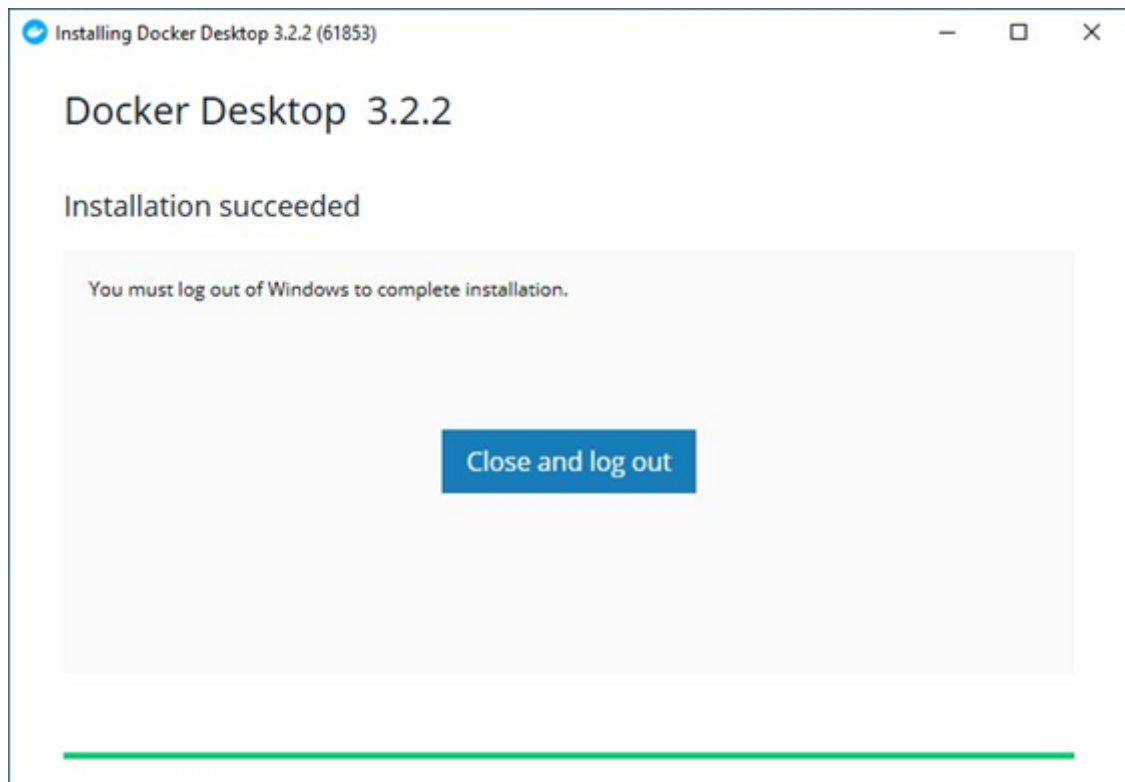
4. Execute the batch script `scripts/install_wsl/install_2.bat` by right clicking it and selecting "Run as administrator".

## Installation of Docker Desktop

1. Install Docker Desktop from the docker website available at the following link: <https://www.docker.com/products/docker-desktop>

**Direct installer download:** <https://desktop.docker.com/win/stable/Docker%20Desktop%20installer.exe>





## Installation and training of Ask Bob

**AskBob** may be built and run as a server headlessly (with support for voice queries either enabled or disabled) using Docker.

1. Copy the **AskBob** demo project folder, `examples/demo` in our repository (<https://github.com/UCL-COMP0016-2020-Team-39/AskBob/tree/main/examples/demo>), to a location on your system where you would like to run **AskBob**.
2. The **AskBob** container may then be built.
  1. **AskBob** can be built without support for voice-enabled queries with `docker-compose` using the following command in the command line, PowerShell or GitBash (if you have that installed):

```
1 docker-compose build voiceless
```

2. Similarly, **AskBob** can be built with such support using the following command:

```
1 docker-compose build voice
```

## Usage of Ask Bob

### Usage

The **AskBob** server can then be launched using the following commands:

- voice-enabled mode

```
1 docker-compose up voice
```

- voiceless mode

```
1 docker-compose up voiceless
```