MIDisSA - Instructions

Joël Inglin, Ann-Kathrin Kübler, Hannah Rohe

General Description

The Application (here called "App") as part of the master project "Modeling Innovation Diffusion in sub-Saharan Africa - An Agent-Based Approach" (MIDisSa) mainly consists of two parts, the backend - also called the "automator" - and the frontend or "user interface". Backend as well as frontend are both stored in GitHub repositories and deployed in separate Docker containers. To facilitate running the App we rely on Docker Compose to start up both required Docker containers at once.

Where to download the App and how to install it is explained below.

Initial installation of the App via Docker

Docker

Docker is a platform that enables developers to deploy an application in so-called containers. The containers are isolated and independent from their environment which allows an application to be run regardless of the computer's operating system. The App's containers are stored at `https://hub.docker.com/u/abminnovationdiffusion` but there is no need to download them manually.

GitHub

GitHub is a platform for developers to store, manage and share code online in repositories. In our case we only need the "application" repository containing the Docker-Compose file which automatically downloads and starts up the correct Docker containers. However, all of our code can be found at `https://github.com/orgs/MIDisSa/repositories`

Run ABM

Step 1) To run the required Docker containers you first need to install the Docker Desktop app from `https://www.docker.com/products/docker-desktop/`). If clicking in the link does not work, copy and paste it in your browser. You might need to restart your device after installing the Docker Desktop app. It is then optional to sign up for Docker.

Step 2) Download the "application" repository from GitHub (`https://github.com/MIDisSa/application/archive/refs/heads/main.zip`). By clicking on the link, the folder should be downloaded automatically. If you face issues, click on the rear part of the link or copy and paste it in your browser. Afterwards extract the repository from the .zip-folder.

Step 3) Now that you've downloaded all the necessary tools, start up Docker Desktop.
If you have problems starting up Docker head to the **Troubleshooting** section below.

Step 4) On your device, open the command-line interface and navigate to the extracted "application-main" folder using the "cd" command. Make sure the folder you are in contains the "docker-compose.yml" file. You can check the contents of a folder using the "dir" command on Windows or the "ls" command on Linux/MacOS.

Step 5) In the command-line, execute the following command:

```
docker-compose -f docker-compose.yml up --build
```

The command tells Docker to download the necessary containers and start them up. This may take a few minutes.

Step 6) Open your browser and enter "localhost:3000" into the address bar. We recommend using either Firefox, Google Chrome or Safari.

After initial installation

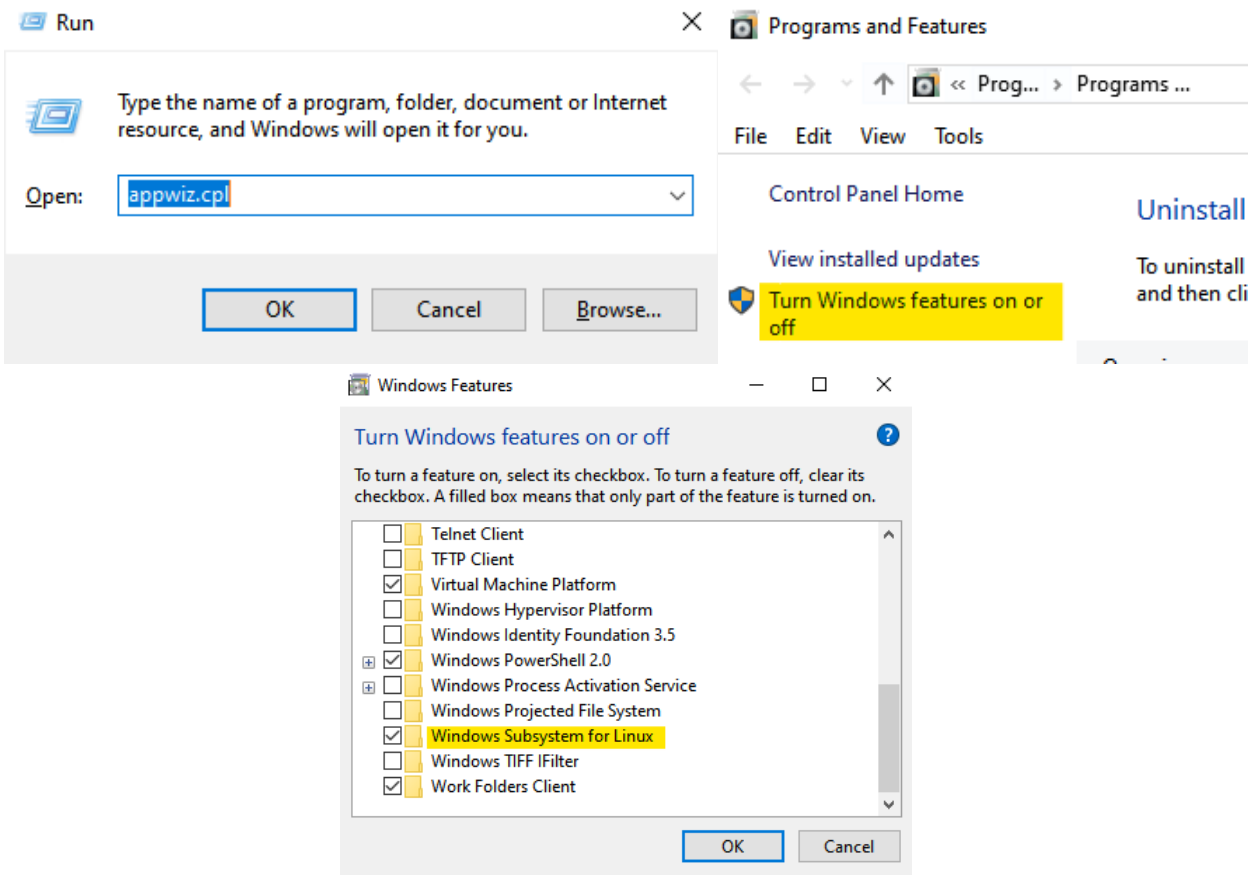
After you have successfully installed the App for the first time, starting it up again, becomes very simple. Start up Docker Desktop, navigate to the "Containers" and start the "application-main" container.
Finally, open your browser and enter "localhost:3000" again into the address bar.

Troubleshooting

If you have encountered an error when starting up Docker Desktop this might be because of one of Windows' default settings. Here are some steps you can take that hopefully help you to get Docker up and running:

WSL

Make sure Windows Subsystem for Linux (WSL) is enabled on your system. To do this, press Windows key + R, type "appwiz.cpl" and hit enter. Then navigate to "Turn Windows features on or off". Verify that "Windows Subsystem for Linux" is enabled. Then restart your PC.



Check if WSL is working by opening the commandline (Windows key + R, "cmd") and execute the command "wsl -l -v". The output should show NAME, STATE, and VERSION. If VERSION is not 2, run the command

```
wsl --set-default-version 2
```

Now try again to run Docker.

Virtualization

Make sure you have Virtualization enabled on your system. To do this, again press Windows key + R, type "appwiz.cpl", hit enter and navigate to "Turn Windows features on or off".
Make sure the following features are enabled:

- Virtual Machine Platform or VM-Platform
- Hyper-V (if existent)

Restart your PC and try running Docker again.

If there is still an error, virtualization might be disabled on your motherboard. To change that, access your system's BIOS/UEFI. How to access your BIOS is dependent on your system. Usually, this is done by restarting the PC and pressing F2 during start-up. Find the CPU-configuration in the BIOS within the advanced settings and turn on Virtualization. Now restart your PC and try again.