Getting Started

The user manual for Digit's hardware and software can be accessed at this link using a web browser when the simulator is running. This document contains instructions for getting the simulator running on your personal computer or workstation.

Requirements

Supported Operating Systems

- Linux (Ubuntu 18.04/20.04, other distributions may also work)
- Windows 10 (requires Windows Subsystem for Linux)

Running the simulator on a computer with any other operating system (e.g. MacOS) requires a Linux virtual machine.

CPU

Requires an AMD64 processor with AVX support. Most Intel and AMD processors released since 2011 will work, with the notable exception of Intel Atom processors.

Additional

Running the simulator requires basic knowledge of how to run commands and navigate the filesystem in a Linux terminal.

Setup

Linux

1. Download the desired version of the simulator. This is the file named `ar-control-xxxx.xx.xx`, where the part after `ar-control` is the release date and version number. Choose the latest version unless it is necessary to do otherwise.
2. Open a terminal and navigate to the directory containing the file you downloaded.
3. Run the command `chmod +x ./ar-control-xxxx.xx.xx` to allow executing the file as a program.
4. Run the command `./ar-control-xxxx.xx.xx` to start the simulator. You should see the text `Agility Robotics Control Stack`, followed by the release version and some more information.
5. Open this link in a web browser. You should see a page with several links, including a link to the full documentation.
6. Press Ctrl+C in the terminal to stop the simulator when you are finished.

Windows 10

1. Install Windows Subsystem for Linux using the instructions here. When asked to select a Linux distribution, we recommend Ubuntu 18.04 LTS. WSL 2 is recommended over WSL 1.
2. Download the desired version of the simulator (see step 1 of the Linux instructions) to `C:\Users\<Username>\Downloads`, where `<Username>` is your Windows login username.
3. Open the Ubuntu 18.04 shell from the start menu.
4. Run the command `cp '/mnt/c/Users/<Username>/Downloads/ar-control-xxxx.xx.xx' ./`, replacing `<Username>` and `xxxx.xx.xx` as appropriate. This will copy the simulator into the virtual Linux system.
5. Continue by following the Linux instructions from step 3.

Troubleshooting

- The simulator crashes with an error message mentioning an "illegal instruction" or similar. This crash may occur immediately when trying to start the simulator, or possibly after the simulator has been running for a while.
    - The computer's CPU is not supported. Try running the simulator on a newer computer.
- The simulator fails to start with an error message similar to `/lib/x86_64-linux-gnu/libc.so.6: undefined reference to 'clock_gettime@GLIBC_2.17'`.
    - The version of glibc on this computer is too old. Try running the simulator on a system with a newer Linux distribution on it. Ubuntu 16.04 is the oldest operating system that we currently maintain support for.
- On Windows 10, the simulator fails to start with an error message mentioning "squashfs" or "FUSE".
    - Use `./ar-control-xxxx.xx.xx --appimage-extract-and-run` to start the simulator instead. This occurs if you are using WSL 1 instead of WSL 2.
- The simulator is running, but there is no terminal window to shut it down from, and I cannot start a new instance of the simulator.
    - Run `pkill ar-control` in a terminal to terminate the program. Note that the version number should be omitted. This usually happens if you start the simulator by double-clicking on it in the file browser.