Docker vs VirtualBox

# Information

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And: [Research Alternatives To VirtualBox For M1 Macbooks (#26) · Issues · CourseEval / Team Blue · GitLab (drexel.edu)](https://gitlab.cci.drexel.edu/courseeval/team-blue/-/issues/26)

Author: Hoang Nguyen  
Editor: Peter Mangelsdorf

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# Comparison

<https://www.smarthomebeginner.com/what-is-docker-docker-vs-virtualbox/>

## Docker

1. Docker can already run Intel VMs on Apple Silicon.
2. Docker is becoming increasingly popular which leads to more support long term.
3. Docker offers the ability to run multiple applications within the same host operating system, sharing underlying resources.
4. Docker has more functionality and it is more efficient at running apps.
5. Docker is better for running apps and services in containers because it is faster and easier.
6. As good as Docker is, it can't replace a virtual machine.

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## VirtualBox

1. VirtualBox is good for virtual machines because it allows you to install a complete operating system while in Docker you don't have the full functionality of an operating system.
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3. Virtual machines are generally bigger in size compared to Docker because they contain a whole operating system underneath.

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# Apple Issues

VirtualBox, a virtual machine that EvaP uses for its development environment, is not able to be run on non-intel Macbooks (M1).

The benefits are that a whole community of developers who use the M1 macbooks will be able to contribute to the EvaP project. No risks are introduced as users can choose not to install whatever software we end up using and just resort to VirtualBox.

<https://apple.stackexchange.com/questions/422565/does-virtualbox-run-on-apple-silicon>

The above stack exchange link shows that VirtualBox does not run on non-Intel architectures.

Some alternatives to this are VMWare, which just announced a preview version for M1 Mac books. Parallel, UTM and most notably Docker also support Linux ARM virtual machines.

If the virtual machine we are trying to run is an Intel one, we are not able to run that natively on ARM without Docker and QEMU. QEMU is a free and open source emulator. It emulate's the machine's processor and provides a set of different hardware and device models for the machine, which lets us run a variety of operating systems:

<https://www.docker.com/blog/released-docker-desktop-for-mac-apple-silicon/>

# Overall

It looks like Docker is better because of its increasing support and higher efficiency. We do not need a whole virtual machine to run EvaP, as we can isolate it to just the web application.