Windows on MacOS Overview - READ FIRST

tl;dr

While x86/x64 emulation on modern Macbooks have made leaps and bounds since their initial release in 2020, the experience with traditional engineering applications in a 2020+ macOS virtualized Windows instance is extremely inconsistent and depending on application you may spend more time trying to troubleshoot compatibility issues than you will need to complete your homework assignment.

Using a Windows laptop, a legacy Intel-based Macbook, a campus computer lab, or CEAS Cloud Computing will be your easiest paths forward.

If you choose to pursue installing these applications through a virtual machine on macOS, it is at your own risk. No support can be provided by the ITLP or OIT for any documentation provided within these guides.

Overview

Starting with the MacBook M1, which released in November 2020, Apple computers converted from the common x86/x64 architecture Intel processors to ARM. While this made great advances in things like power consumption and performance, it came at the cost of leaving behind applications that were written for the architecture most commonly associated with PCs.

Many of the engineering applications used today such as ANSYS, LabVIEW, and Solidworks are slow moving behemoths whose development is unlikely to take any significant turns in support due to the inertia of their products. Of these three examples, only LabVIEW offers a native version for macOS and it is generally considered feature incomplete versus its Windows equivalent.

Virtualization Options

- Parallels (website)
  - The most well known and supported way to run a virtual instance of Windows. At time of writing for students it is $49.99/yr to use the standard version (8GB RAM, 4vCPU limit) or $59.99/yr for the professional edition.

- VMWare Fusion (website)
  - At time of writing, VMWare Fusion is free to download after signup. It is unclear if support will be provided long term.
- Others
  - Outside of the big two, the most common mention we've heard is for Whiskey, an emulation tool meant for use in playing Windows games on a Macbook. This application stopped receiving updates in April 2025, but the site and its documentation still exist.

General Expectations

- Virtualization is only viable for applications that do not integrate with connected devices such as arduinos, DAQs, etc.
- The more straightfoward the application is, the more likely you are likely to see success.
  - EES, for example, has had some known successes with students.
  - Larger suite type software such as ANSYS, LabVIEW, or Solidworks are likely to have complications and require more GPU and memory than would typically be available on a lower end Air or Macbook Pro.

Is there a full list?

No, due to the extensive time and hardware needed to test out these applications there is not a full list of software and their compatibility potential. Some specific applications we tested enough to have some comments on are listed below.

- Software Comments
  - ESS - In both our and student testing there was evidence that this may be a viable application to use in a VM.
  - NI LabVIEW - Not viable for the lack of stable connectivity for USB devices, but also has noted that installing the drivers with it has a history of immediately breaking its Windows desktop.
  - Solidworks - While we were able to reliably install this successfully, the stress testing we performed through performance testing intermittently caused the application to lock up. We did not attempt to isolate what specifically was causing the lockups during the test. Performance benchmarks, when they did complete, were suboptimal as Solidworks could not properly take advantage of the vGPU.

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