

Microsoft Windows Installation Guide

For CS 271 Mac Users

Introduction

The software development tool for this course, Microsoft Visual Studio, requires an Intel or AMD Windows 10 PC. If you have a Mac, you must make some key decisions to get this tool running:

1. If your Mac has an Intel CPU, you must either:
 - a. Set up your machine in a dual boot configuration to boot into Windows 10 natively, OR
 - b. Use a virtual machine (VM) to run a Windows 10 environment within your MacOS.

For option 1a to work, your Mac needs at least 64 GB free hard drive space and 4 GB of RAM to properly run [Boot Camp](#). The installation process repartitions your hard drive and there is a slight risk of error inducing data loss. However, Boot Camp does not slow down your system like a virtual machine because only one OS is running at a time.

For option 1b to work, the College of Engineering (COE) recommends that your Mac have at least 60 GB hard drive space and 4 GB RAM (note that with these specs, the VM will run slowly). If your Mac does not have at least these specifications, alternatives include using an external hard drive to run your VM, logging onto Citrix (a slow alternative, especially during debugging sessions), borrowing a Windows PC, or upgrading your Mac.

2. If you have a Mac that uses the Apple CPU (M1 or newer), your only options are the MIME EECS Desktop through Citrix, using one of the open on-campus computer labs, or gaining access to a Windows PC. The Additional Resources section of the syllabus Tools tab has more information about creating an ENGR account, installing and running Citrix, and setting up Visual Studio in your Citrix workspace for use in CS 271.

The remainder of this guide explains option 1b for setting up Windows 10 in a VMware virtual machine on a Mac with an Intel CPU and sufficient specifications to support that environment.

Installing VMware on a Mac

1. Click the **VMware Academic Site** link in the **Tools** tab of the syllabus on Canvas.
2. Sign in using your OSU credentials and **select** the most recent edition of VMware.

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VMware Fusion 12 Pro



VMware Fusion 12 Pro Player



VMware vCenter Server 7x Standard



VMware vRealize Suite 2019 Enterprise



VMware vSAN 7x Enterprise



VMware vSphere 7x Enterprise Plus



VMware Workstation 16x Player



VMware Workstation 16x Pro



VMware Fusion 11x Pro (for Intel-based Macs)



VMware Workstation 15x Player



VMware Workstation 15x Pro



VMware vCenter Server 6x Standard


VMware Fusion 10x Pro (for Intel-based Macs)


VMware Workstation 14x Pro


VMware vRealize Suite 7.0 Enterprise


VMware vSAN 6x Enterprise


VMware vSphere 6x Enterprise Plus

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3. Click **Add to Cart**

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Software eLab eLearning

VMware Fusion 12.x Pro

Manufacturer
VMware, Inc.

Platforms
Mac

Delivery Type
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Free

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[Are you eligible?](#)

You will be able to place an order for this product again in 12 months after the initial order.
The license you will receive with this offering is valid 12 months starting with the 1st of the month the offering was ordered.

Other Options

Fully featured version, available for download. This product allows for personal use on a single machine, not for use on shared workstations. You must be a student, faculty or staff member of an academic institution to qualify for this offer.
You will be able to place an order for this product again **one year** after the initial order.

Description System Requirements Are you eligible?

VMware Fusion delivers a secure and powerful desktop sandbox for running Windows or other operating systems on the Mac without rebooting. Use at home to run Windows DX11 games or for learning with a Personal License, or use Fusion Player to separate Work from Home life with a commercial license.

- Powerfully Simple
- Run Nearly Any Operating System on Mac
- Connect to VMware vSphere
- Develop and Test for Any Platform

4. Copy your unique **Serial Number** (save for later) and click **Download**.

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Details

✔ Your order has been placed and a confirmation email will be sent to you shortly. An invoice you can print is available [here](#). Detailed information about all of your orders can always be found under Your Account.

Details (Order Number: 100699695060)

Downloads

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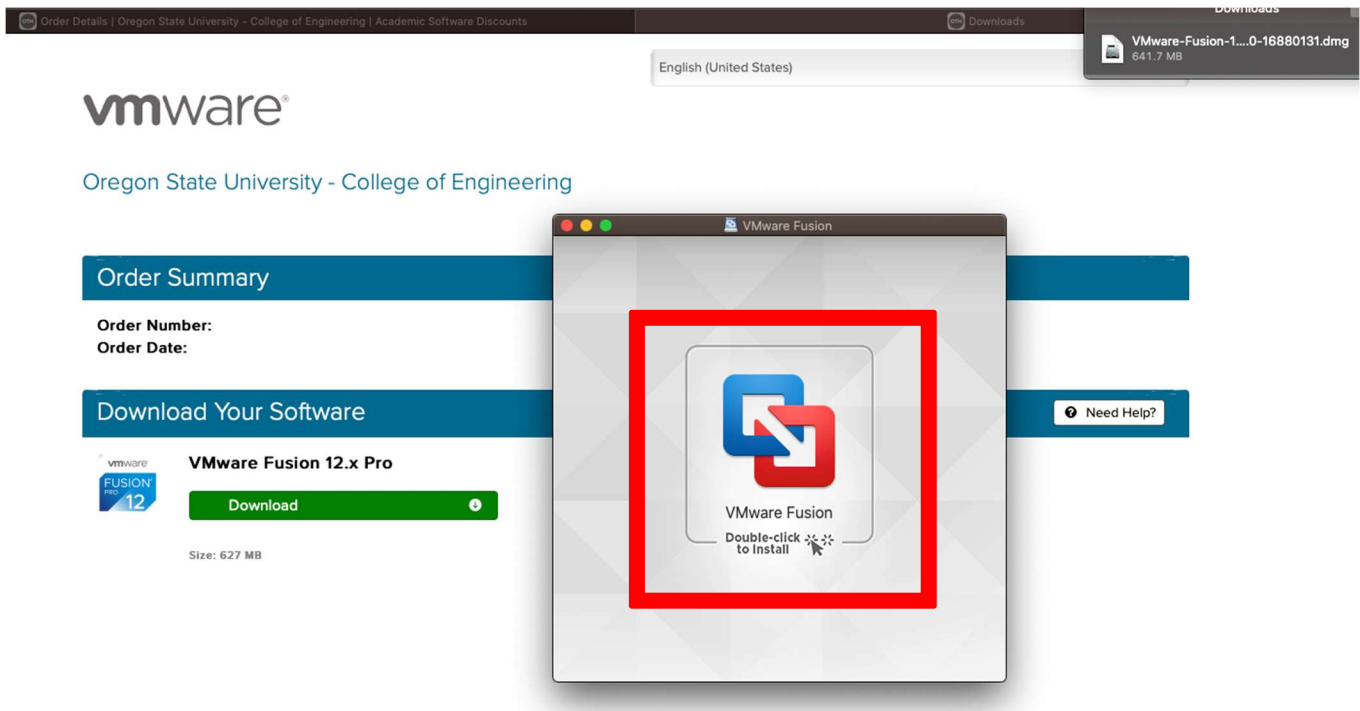
FUSION PRO 12

VMware Fusion 12.x Pro - Download

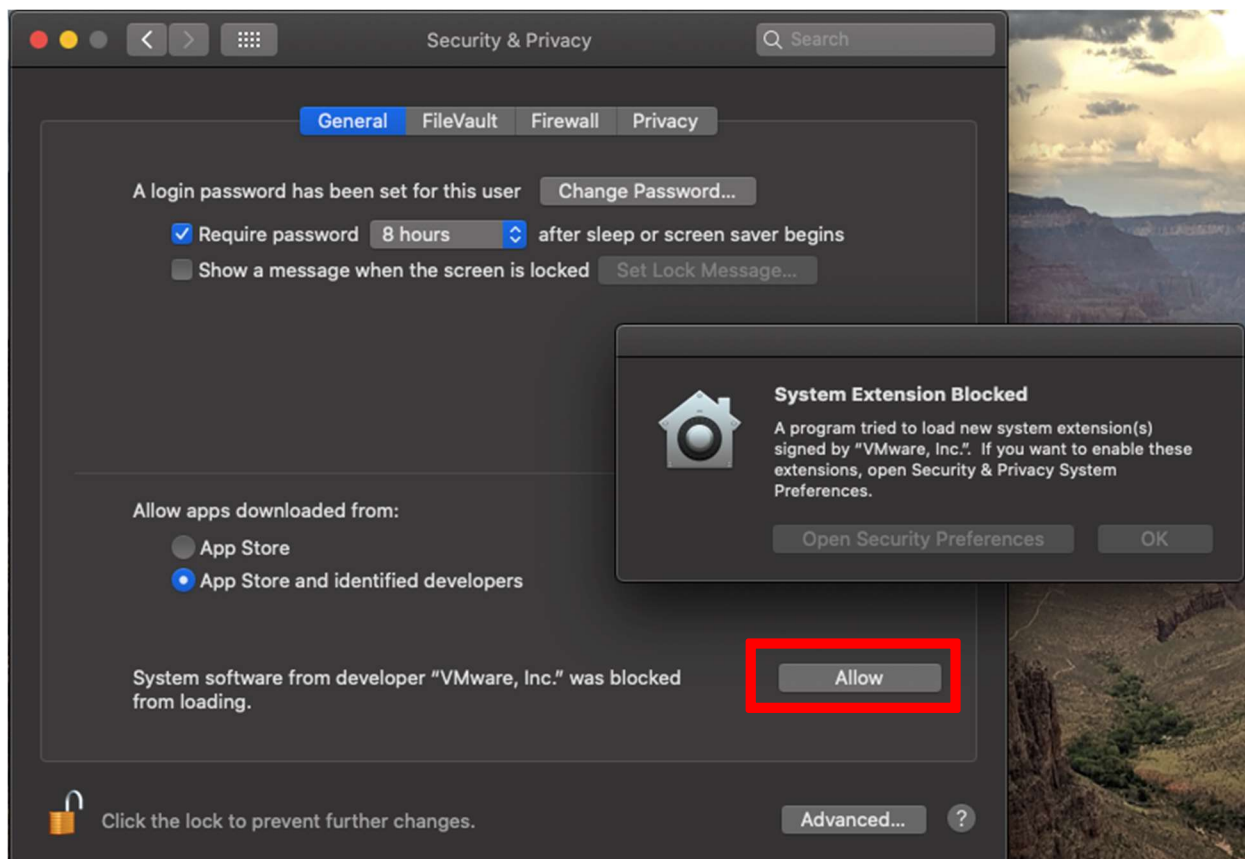
Serial Number: MH [REDACTED]

Download

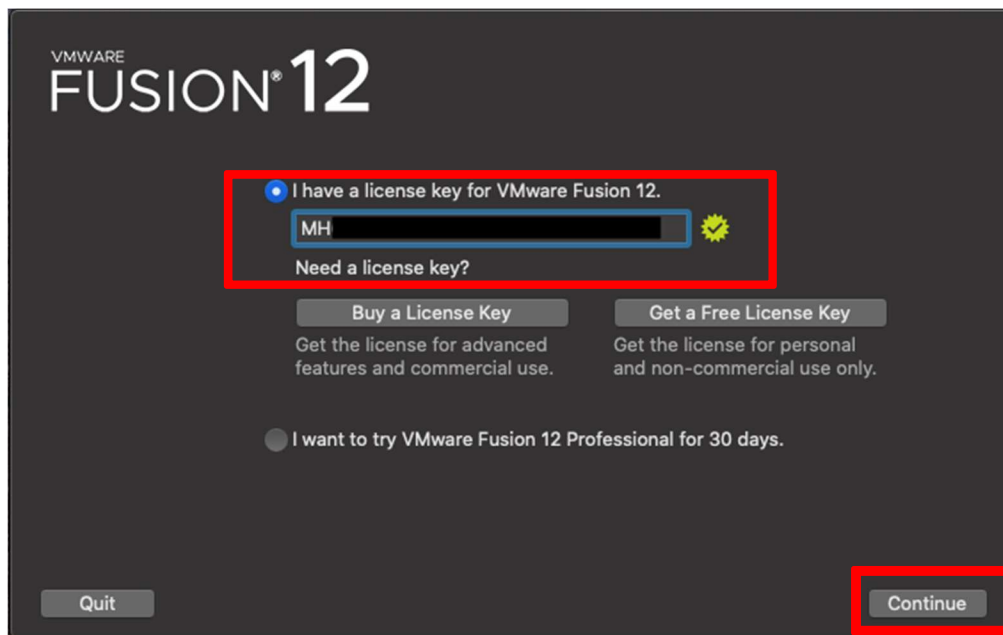
- Open the downloaded application and double-click the **icon** to begin the installation process.



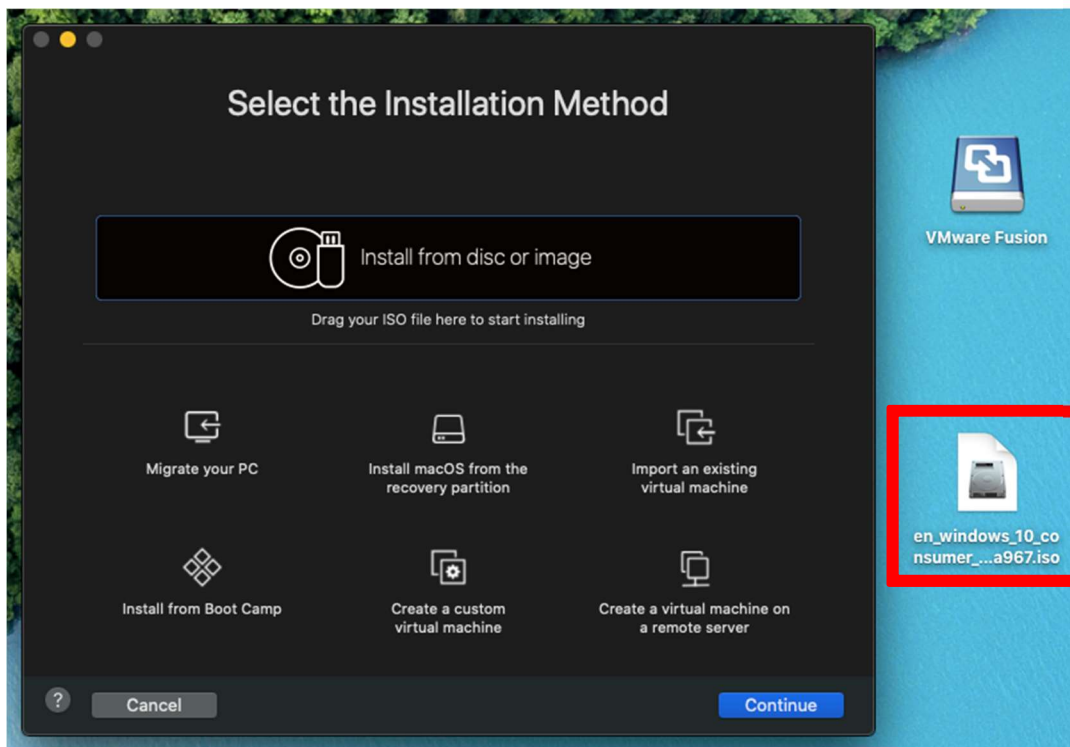
- Go to System Preferences à **Security & Privacy** to **Allow** VMware software to load.



7. Paste your copied **License Key** into the form and click **Continue**.



8. Your VMware screen should look like this. If you have already downloaded Windows 10, skip to step 15.



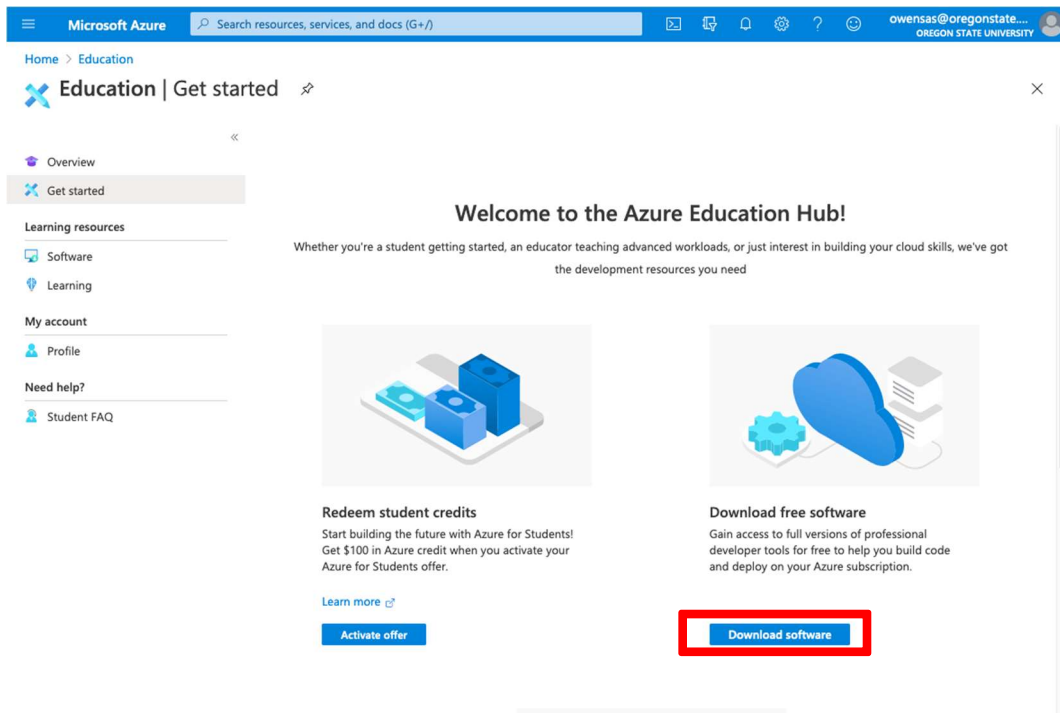
9. If you do not have Windows 10 yet, navigate to Canvas and click the **Microsoft Azure Interface** link in the **Tools** tab of the syllabus.

Installing Windows 10 in the VMware Environment

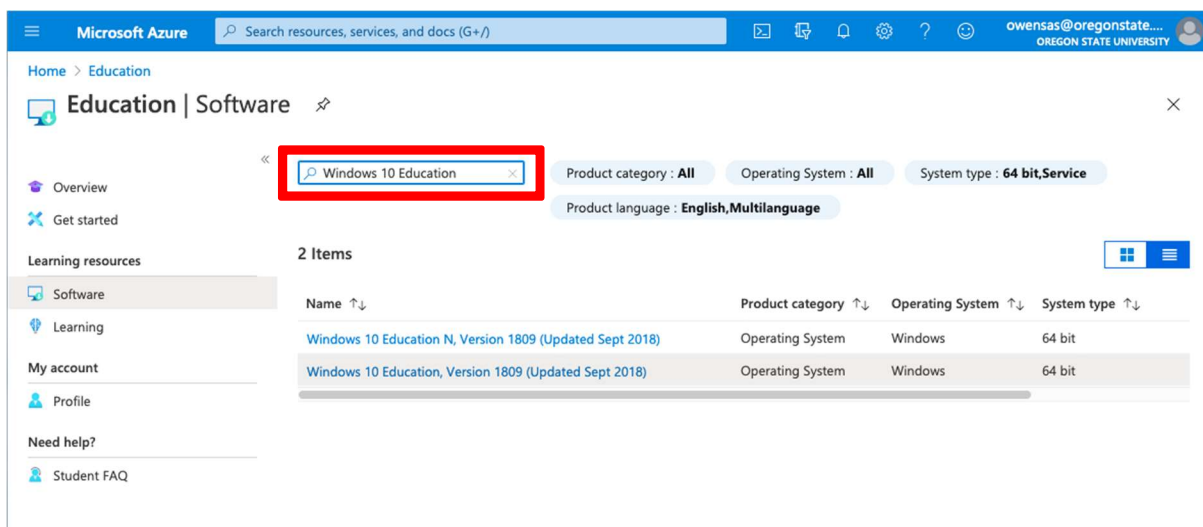
10. Sign into Microsoft Azure using your ONID credentials.

Note: You should be able to log in with your OSU email address (username@oregonstate.edu) which will forward you to the OSU central login page. Sometimes Microsoft requires that you log in with a non-OSU email (if you have an existing account you can use it) and then verify your OSU email to obtain access.

11. Once you reach the Microsoft Azure Portal, click **Download Software**.



12. Type **Windows 10 Education** into the search bar.



13. Click the **Windows 10 Education** edition you would like to download and then click **View Key**.

The screenshot shows the Microsoft Azure Education Software page. On the left, there's a sidebar with navigation links: Overview, Get started, Learning resources, Software (selected), Learning, My account, Profile, Need help?, and Student FAQ. The main content area shows a search for 'Windows 10 Education' with filters for 'Product category: All' and 'Product language: English, Multilingual'. A list of 2 items is displayed, with 'Windows 10 Education, Version 1809 (Updated Sept 2018)' highlighted. On the right, the details for this software are shown, including a description, operating system (Windows), product language (English), and system architecture (64 bit). The 'View Key' button is highlighted with a red box.

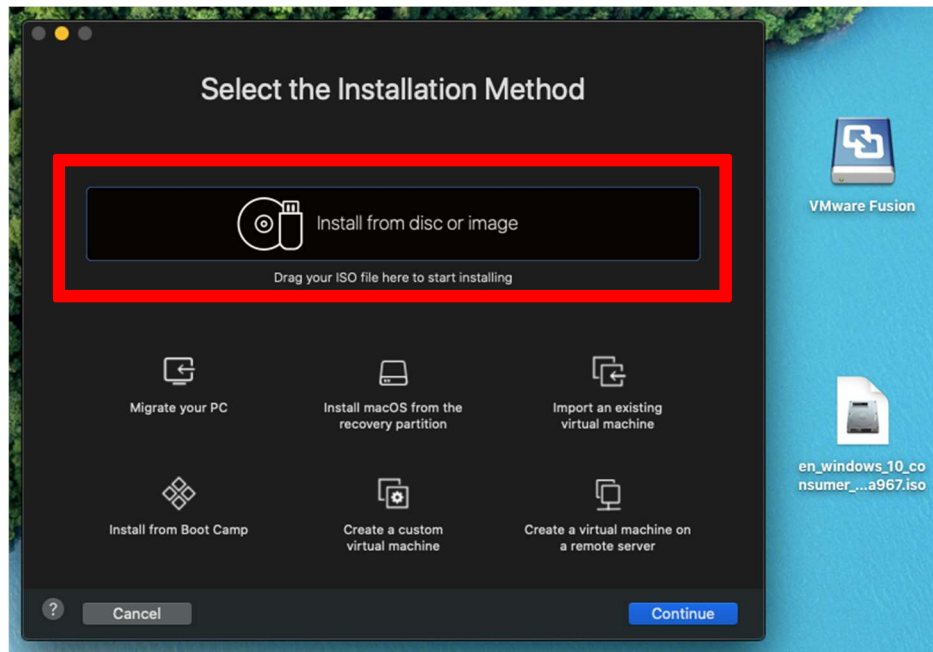
14. Copy your unique **Product Key** (save for later), then click **Download**.

This screenshot shows the same Microsoft Azure Education Software page, but now the 'Product key' field is visible and highlighted with a red box. The product key is partially obscured by a black bar. Below the product key field, there's a warning message: 'This product may not be compatible with your current operating system'. The 'Download' button is also highlighted with a red box.

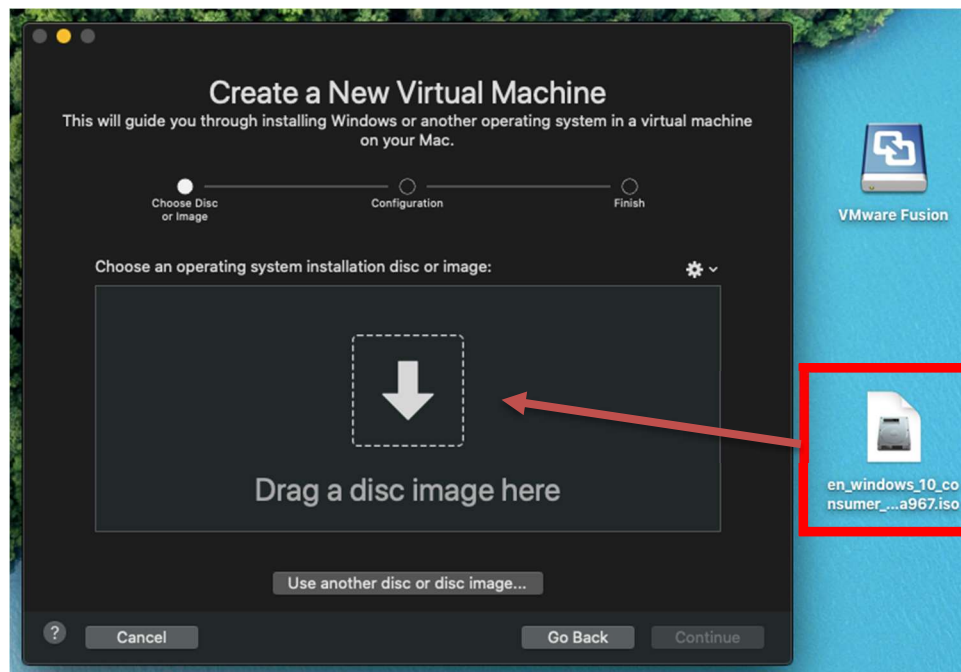
Note: Check the downloaded file and ensure you have ONE .iso file that is approximately 5 GB. If you have a .iso file that says zero bytes and a .iso.part file, you will need to re-download. This is an indication of a failed download, and these files will not work in VMware.

Note: Save your .iso file until you're absolutely sure VMware is properly installed. The Azure site has a glitch that will sometimes lock you out of the system for 2-3 days.

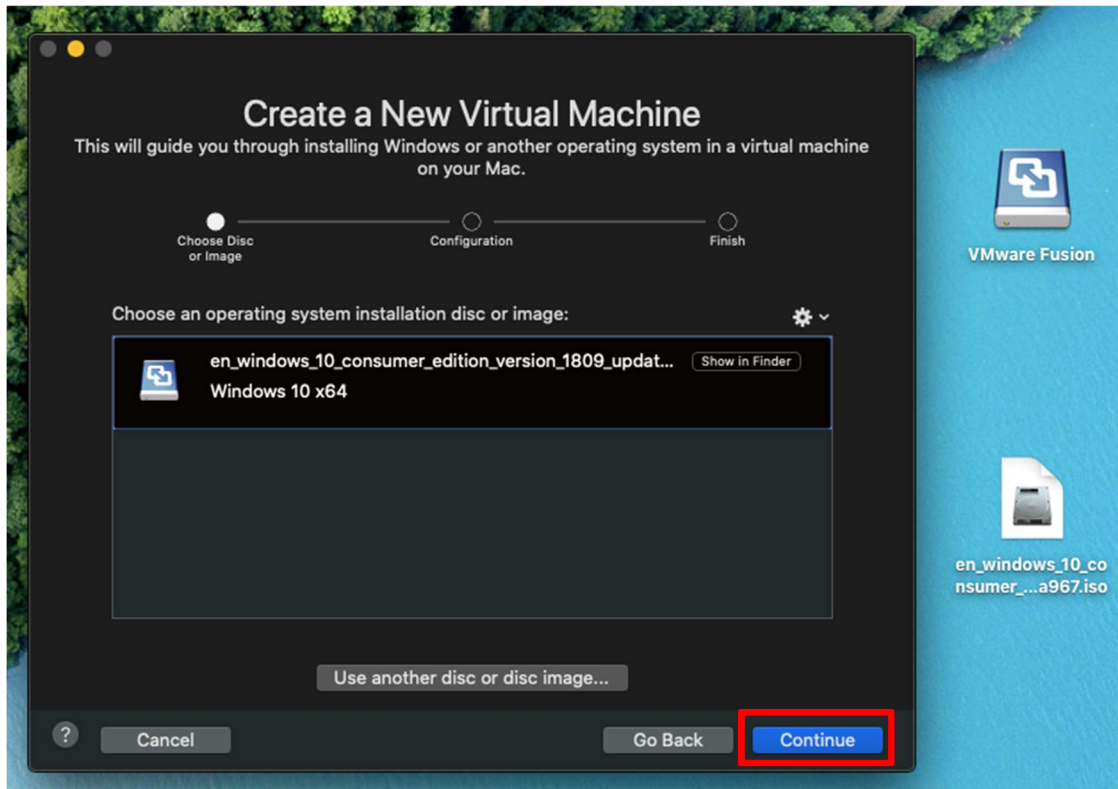
15. Return to your VMware installation and double click **Install from disc or image**



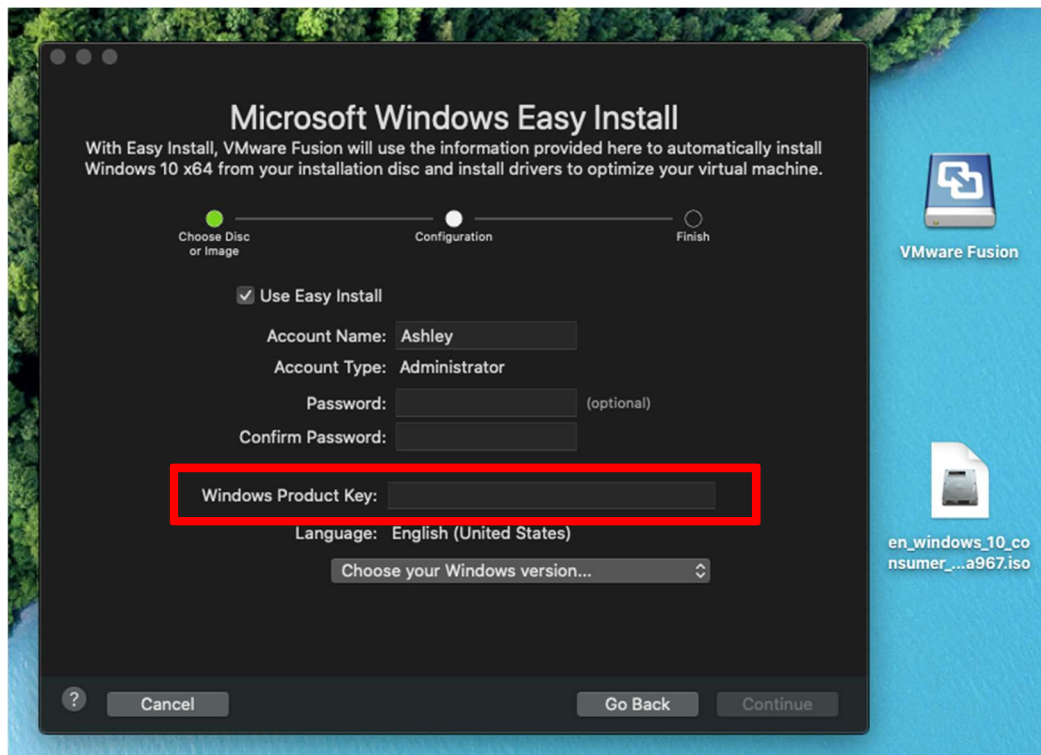
16. **Drag** your downloaded copy of Windows 10 into VMware



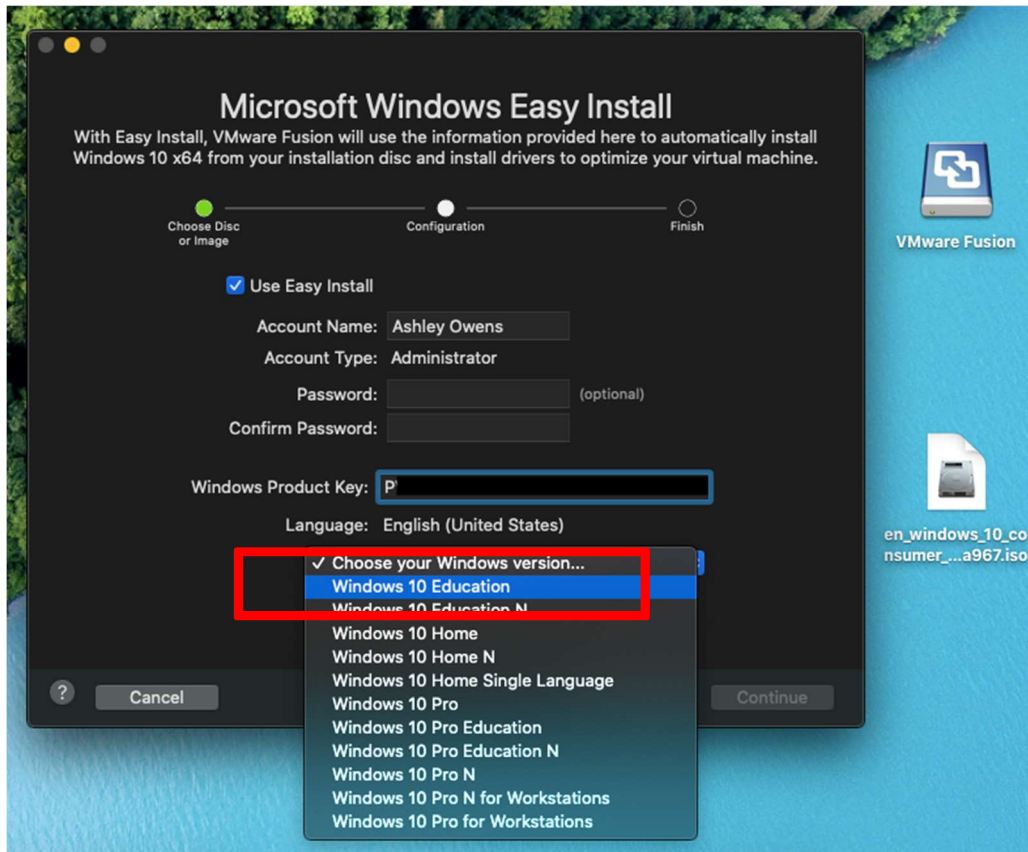
17. Click **Continue**.



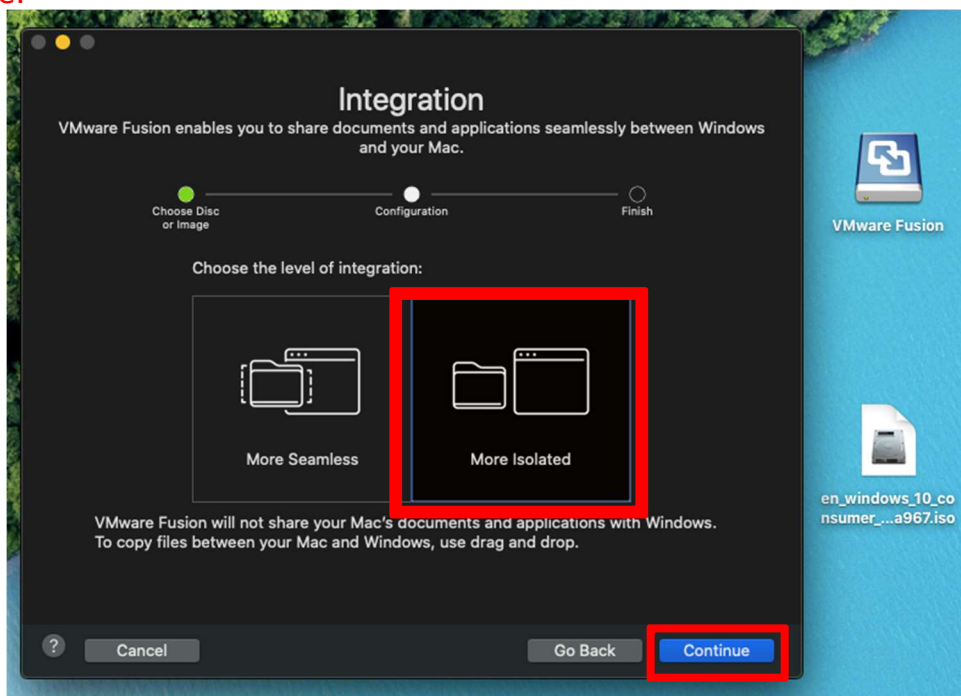
18. Paste in your saved **Windows Product Key**.



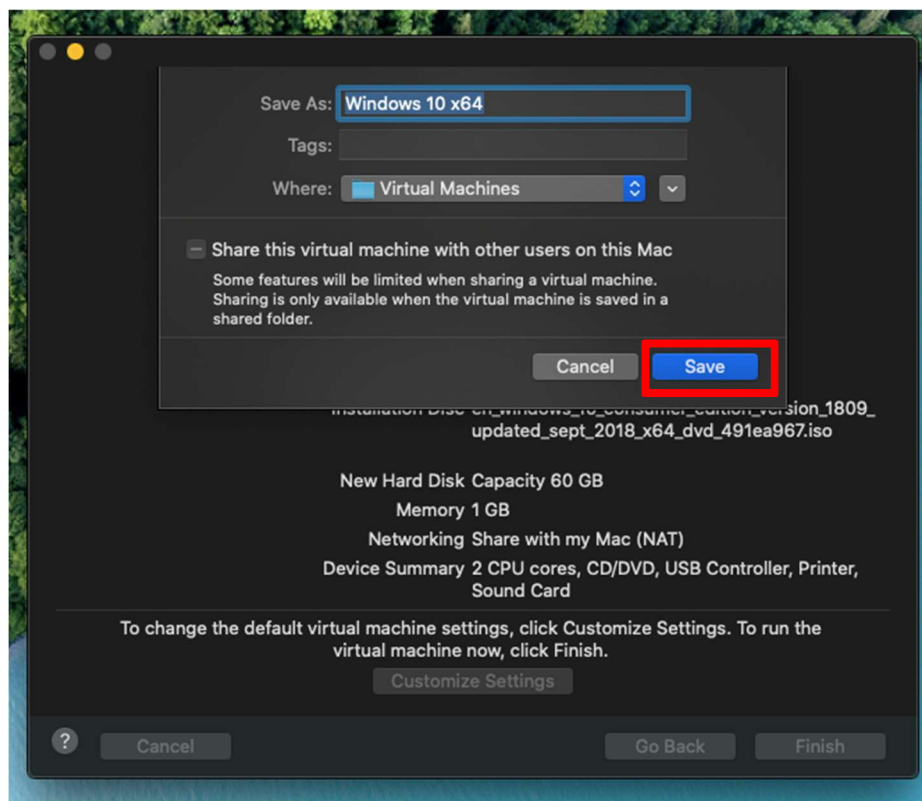
19. Select **Windows 10 Education** and click **Continue**.



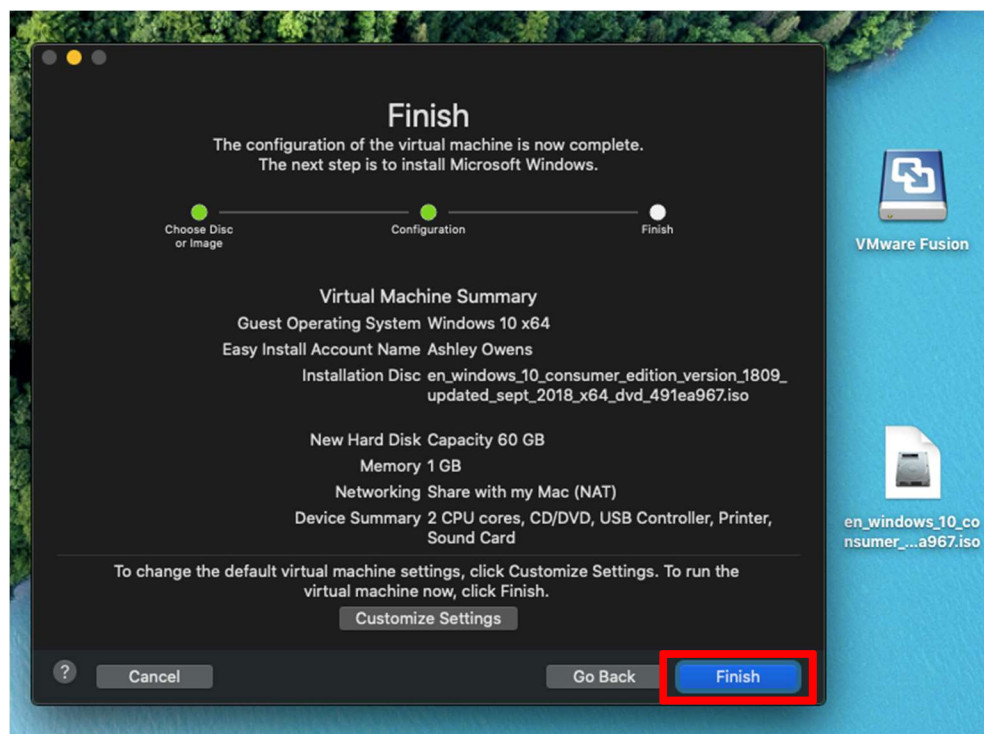
20. If want to minimize RAM and hard drive space usage, select **More Isolated** and click **Continue**.



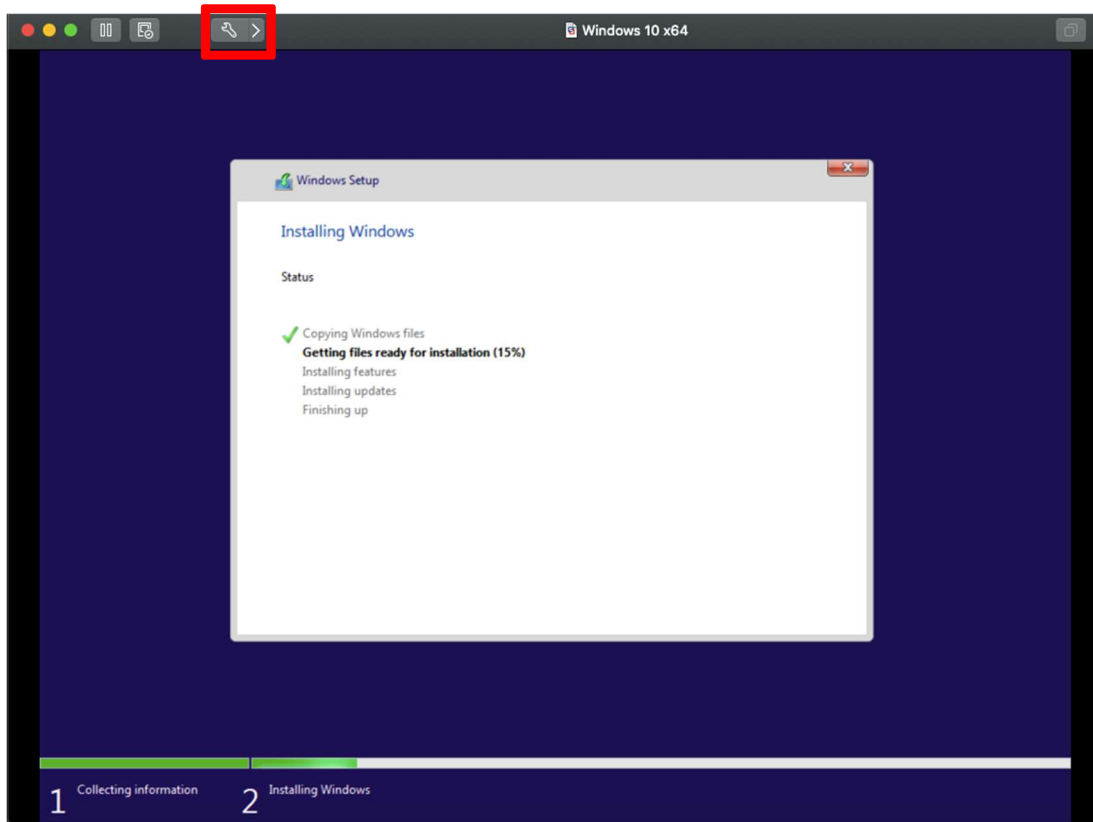
21. Click **Save**.



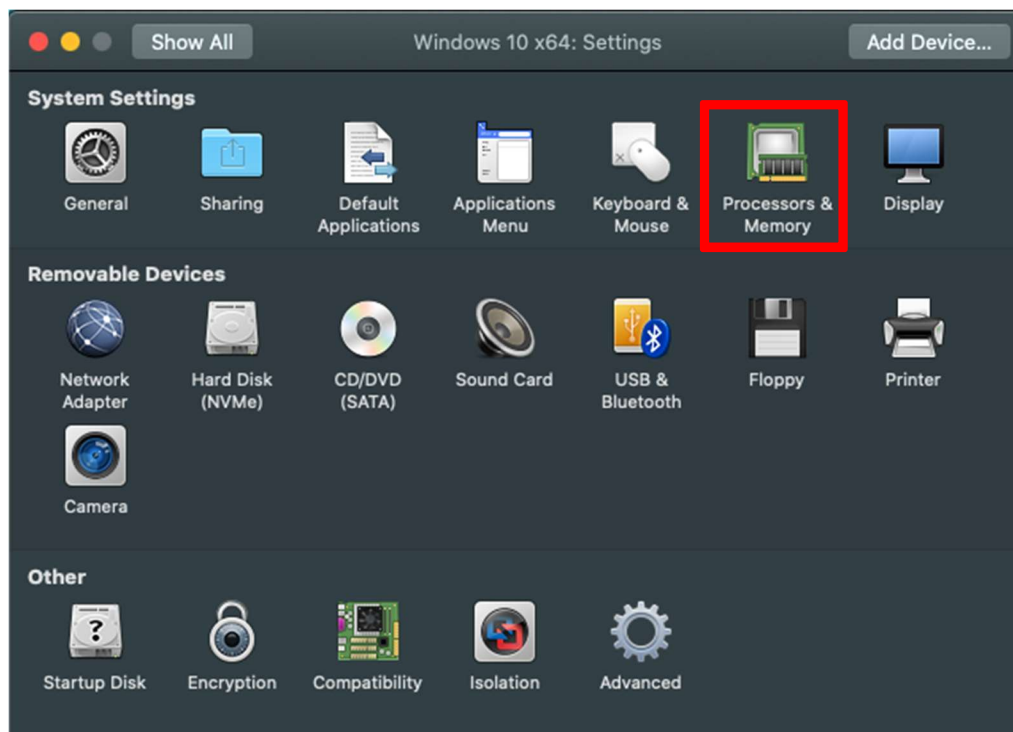
22. Click **Finish**.



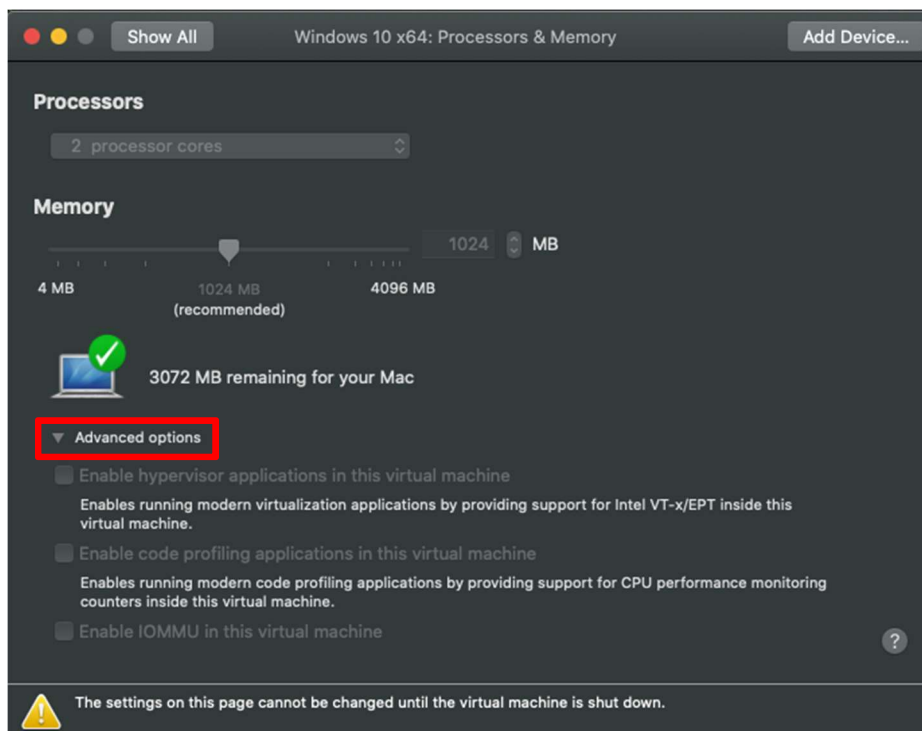
23. While Windows installs, click the **wrench icon** to view the hardware settings for your VM.



24. Click **Processors & Memory**.



25. Click **Advanced Options** and ensure that “Enable code profiling applications in this virtual machine” is **unchecked**. This disables VMware performance counters, which are not supported in the MacOS Big Sur release. Then click the red circle to exit settings.



26. **Installation is complete.** You may have to restart to enable hardware settings changes. Navigate to the **Tools** tab of the CS271 **Syllabus** page in Canvas for Visual Studio installation instructions.

