Creating a Virtual Machine (VM) for Automated Device Enrollment

This guide will walk you through all the steps of creating a virtual machine to be used for Automated Device Enrollment. This will make life easier for IT Admins that need to test provisioning workflows before rolling it out to mass numbers of Mac Computers.

NOTE: This guide was written for use with VMware Fusion version 10 for Mac. There is a bug in VMware Fusion 11 which results in an error when converting a DMG to a VM so version 10 will be used for this guide. For more information on the VMware Fusion version 11 bug, go here:

https://github.com/chilcote/vfuse/wiki/Received-signal-11

Requirements

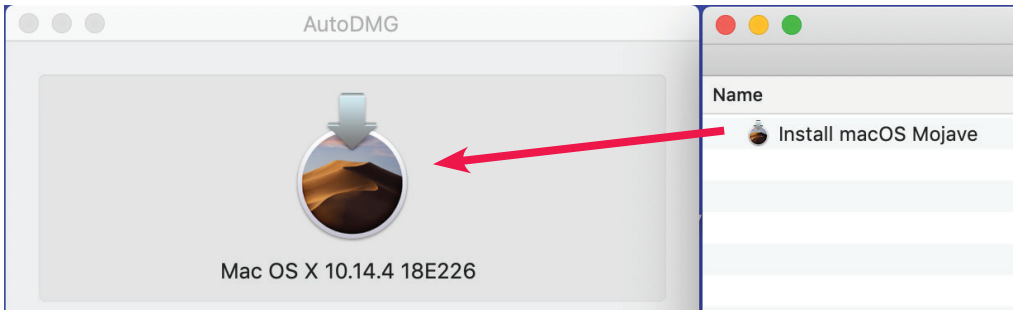
1. VMWare Fusion version 10. Get it here:
   https://my.vmware.com/web/vmware/details?productId=688&downloadGroup=FUS-1000
2. Vfuse 2.0.9 or later. Get it here:
   https://github.com/chilcote/vfuse/releases/tag/2.0.9
3. AutoDMG 1.9 or later. Get it here:
   https://github.com/MagerValp/AutoDMG/releases
4. Latest version of macOS Mojave
5. An external hard drive to put the macOS Mojave installer on. This is required for AutoDMG to build the disk image.
6. A serial number of a Mac computer that is in your Apple Business Manager or Apple School Manager.
7. An MDM server that supports Apple Business Manager or Apple School Manager and pre stage enrollments.

Section 1. Install all requirements and create a macOS Mojave DMG.

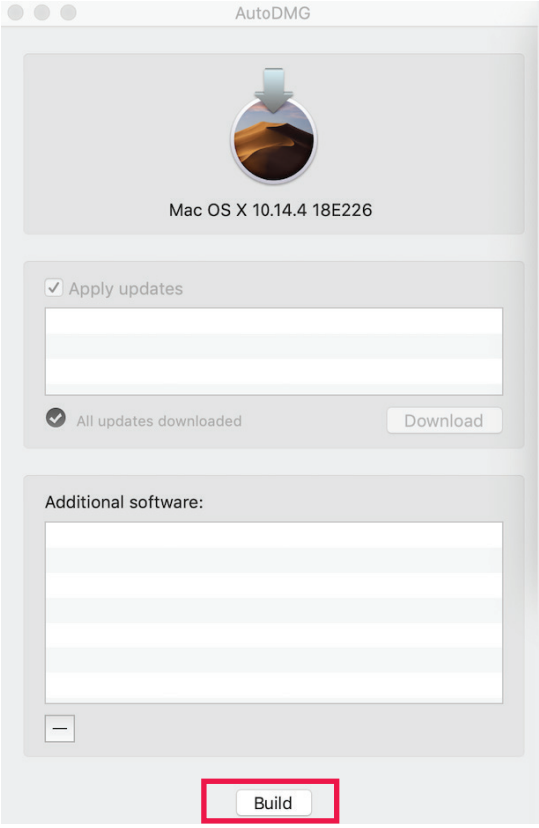
In this section we will install VMware Fusion, Vfuse, AutoDMG and create a macOS Mojave DMG.

1. Install VMWare Fusion.
2. Install Vfuse.
3. Install AutoDMG in the Applications folder.
4. Download macOS Mojave.
5. Put the macOS Mojave installer on an external hard drive.
6. Open AutoDMG located in the Applications Folder.

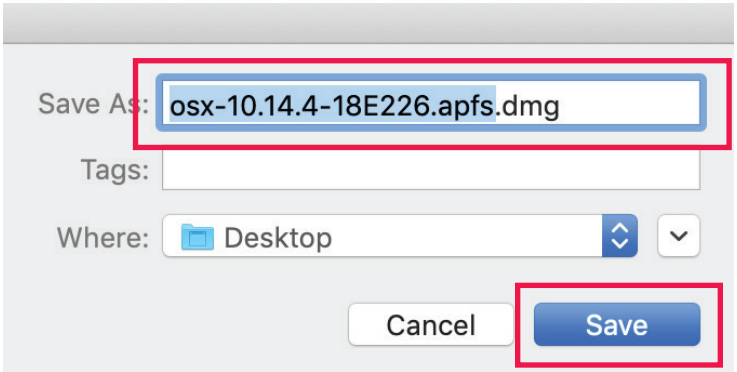
7. Open the external hard drive and drag Install macOS Mojave into the AutoDMG window. AutoDMG will show you the version of macOS Mojave and the build number.



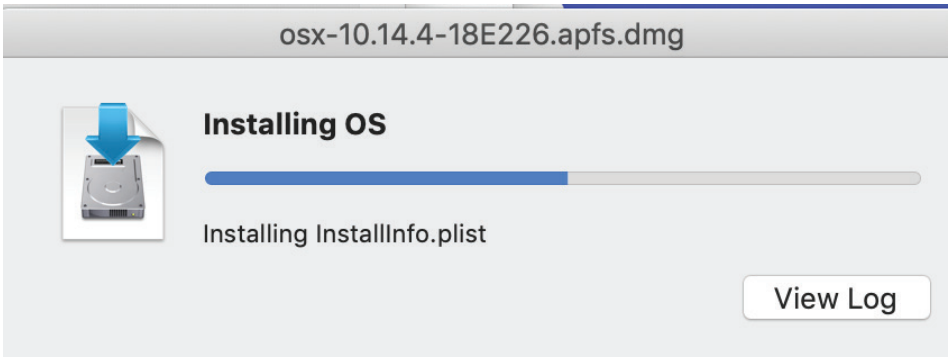
8. Click the Build button.



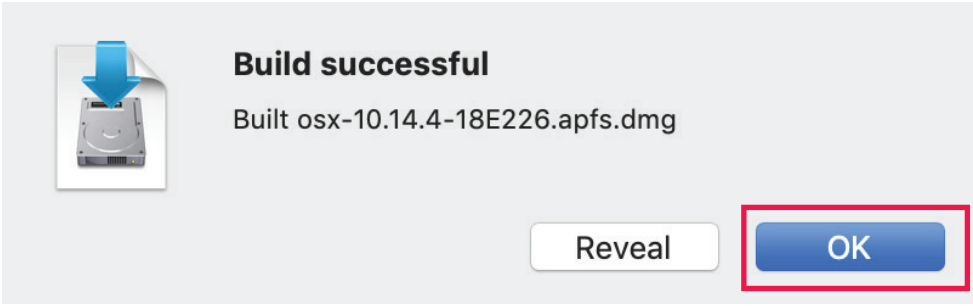
9. Name your image and save it to the Desktop.



10. The image build process will begin. This process can take over 30 minutes to complete.



11. Once the build is successful. Click the Ok Button. The image is saved to your Desktop. Quit the AutoDMG application.

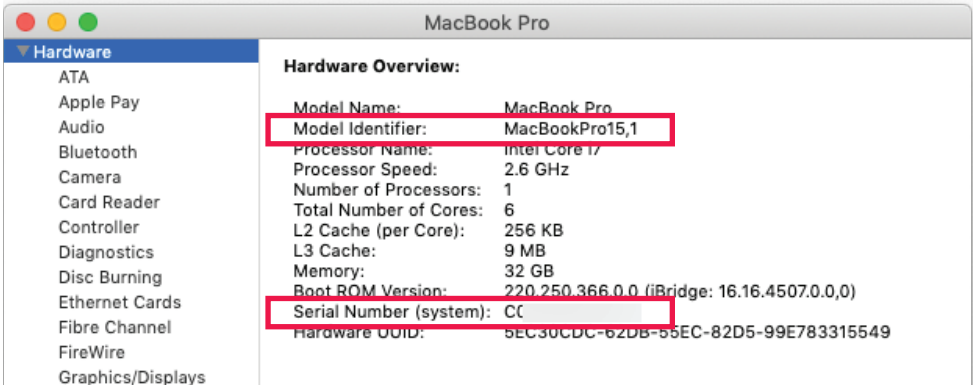


Section 2: Converting the macOS Mojave DMG to a serialized VM for use with VMware Fusion.

1.Click on the Apple logo in the upper left hand corner then select About This Mac.

2. Click the System Report button.

3. Take note of your Model Identifier and Serial Number. We will need these in the next step.



4. Open the Terminal application located in /Applications/Utilities.

Terminal

5. Run the following command:

   NOTE: Be sure to use the path to your macOS Mojave DMG , a name for your VM, your serial, and Hardware model. Replace those items in the command below.

   sudo /usr/local/vfuse/bin/vfuse -i ~/Desktop/osx-10.14.4-18E226.apfs.dmg -n "macOS10.14.4" -s C12345678 --hw-model MacBookPro13,2

6. You will see the following output. Take note of the last line in green. That is where your VM is located.

   NOTE: It's recommended to store this VM in the same location that you store other VM's. By default VMware Fusion stores VM's in /Users/yourUserName/Documents/Virtual\ Machines.

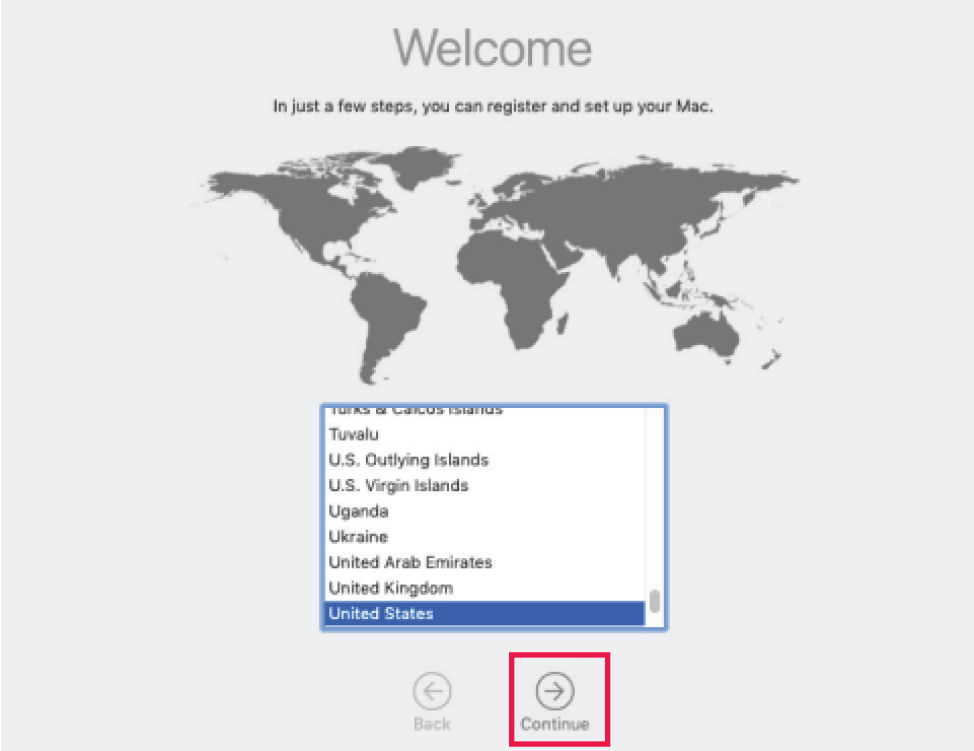
```
Mounting /Users/ladmin/Desktop/osx-10.14.4-18E226.apfs.dmg
[macOS version is 10.14.4
Unmounting /Volumes/Macintosh HD 1
Using VMware Fusion path: /Applications/VMware Fusion.app
Converting DMG to VMDK
Hiding file extension
Populating VMX file
Unmounting /dev/disk2
VMware Fusion VM created at /Users/ladmin/macOS10.14.4.vmwarevm
Mojave-Client:~ ladmin$
```

7. Quit the Terminal application.
8. Before you spin up the VM, Make sure you have it configured for Automated Enrollment in your MDM Server. For this guide, I configured a prestige enrollment in Jamf Pro.

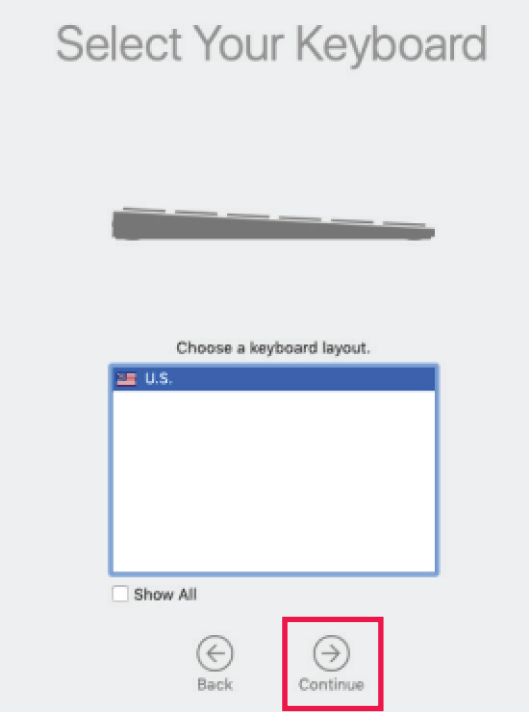
   Double Click the newly created VM. This will spin up the VM.

macOS10.14.4.vm
warevm

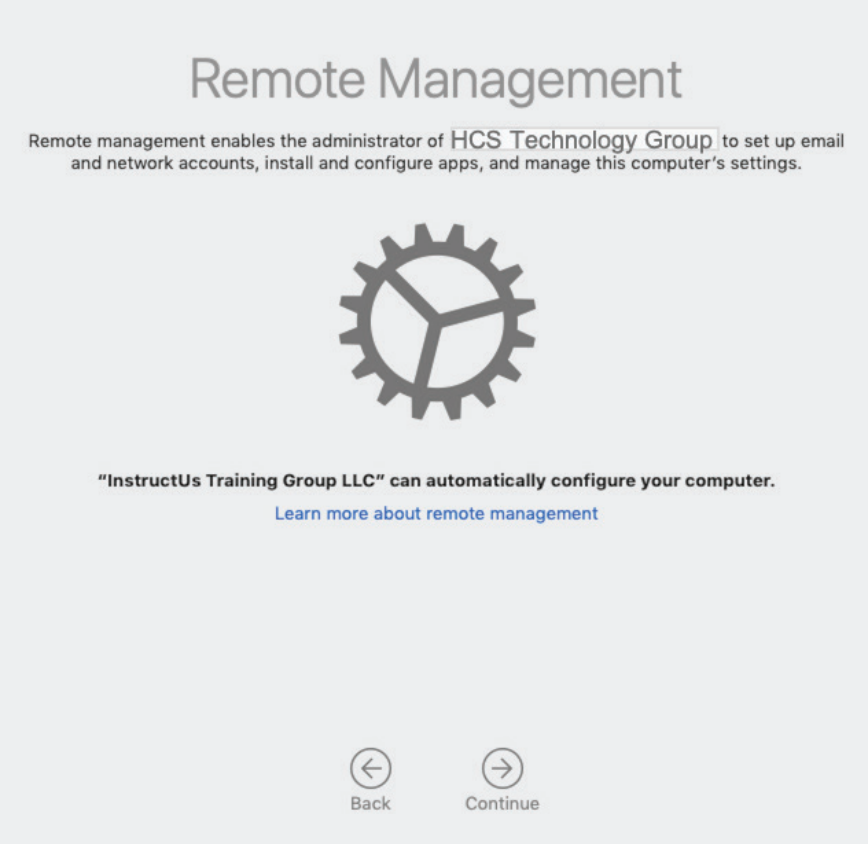
9. Select your country then click Continue.



10. Select your keyboard then click Continue.



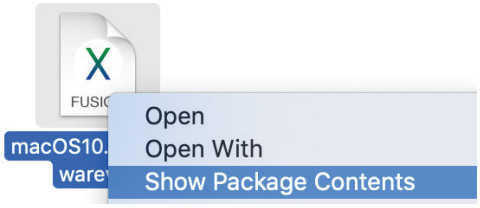
11. If all went well, you are greeted with the Remote Management Screen for your organization. You have successfully created a VM to be used for testing Automated Device Enrollment. If you're not greeted with the Remote Management Screen, Follow the steps in the Troubleshooting Section.



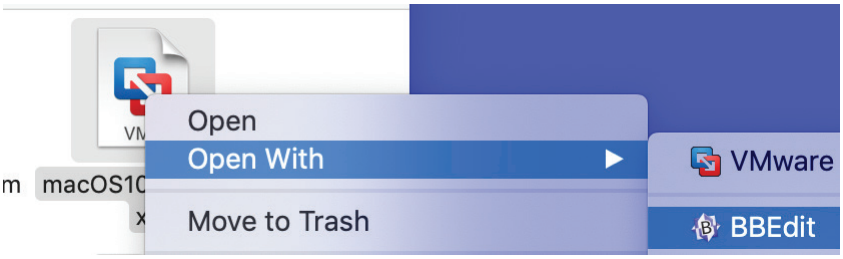
Section 3: Troubleshooting the VM.

When creating this guide, I was NOT greeted with the Remote Management screen shown in Section 2, Step 11. After a bit of troubleshooting, I noticed that the .vmx file for my VM had a space in the serial number which caused it to fail. The steps below will walk you though how to fix that if it happens to you.

1. Locate your VM then right click on it. Select Show Package Contents.



2. Locate the .vmx file and right click on it. Select Open With, then select a text editor.
   NOTE: A plain text editor like BBEdit is recommended.



3. Search the .vmx file for the serialNumber entry. The shot below show a space in the serial number after the first double quote.

```
hw.model = "MacBookPro13,2"
hw.model.reflectHost = "FALSE"
smbios.reflectHost = "FALSE"
serialNumber = " C123456ABC"
```

4. Remove the space after the first double quote and save the file. Once done, double click the VM and follow Section 2, steps 9 -11. You will now be greeted with the Remote Management screen.

```
hw.model = "MacBookPro13,2"
hw.model.reflectHost = "FALSE"
smbios.reflectHost = "FALSE"
serialNumber = "C123456ABC"
```

This completes the guide.