Updated for VirtualBox 6.1 and newer (6/2020)

Troubleshooting VirtualBox

The first time you run a virtual machine in VirtualBox, you may encounter errors due to different settings on your Mac or PC. Use this appendix to troubleshoot your VirtualBox setup. If you try everything listed in these steps and still have trouble, post a question to the class Q&A, or do a web search for the specific error you're seeing. Setting up a virtual hacking lab may take a few tries, but it's worth it!

Troubleshooting VirtualBox on Mac

Some Macs may display an error when loading the Kali VM for the first time. First, make sure you've correctly installed the VirtualBox Extension Pack from Section 2. Then, go to your Mac's **System Preferences ▸ Security & Privacy**, and click the **General** tab. If you see a message near the bottom saying that Oracle software was blocked from loading, click **Allow**. Restart VirtualBox, and your Kali VM should open correctly.

Troubleshooting VirtualBox on Windows

If VirtualBox isn't running correctly for you on Windows, you may need to:

- Turn off Hyper-V options in the Control Panel
- Turn on Virtualization in your computer's BIOS or UEFI settings

We'll go through both steps in more detail below. Once you've done both, restart VirtualBox, and retry opening the Kali VM from Section 2.

Turn Off Hyper-V Options

Some versions of Windows come with Hyper-V (Microsoft's own virtualization software) enabled by default. To use VirtualBox instead, you'll need to turn off Hyper-V.

Go to **Control Panel ▸ Programs ▸ Programs and Features ▸ Turn Windows features on or off** (or enter **`Hyper-V`** in the Windows/Cortana Search, and select **Turn Windows features on or off**). In the list of settings, find and uncheck all boxes that say **Hyper-V** or **Hypervisor Platform** in their names, as shown in Figure B-1.

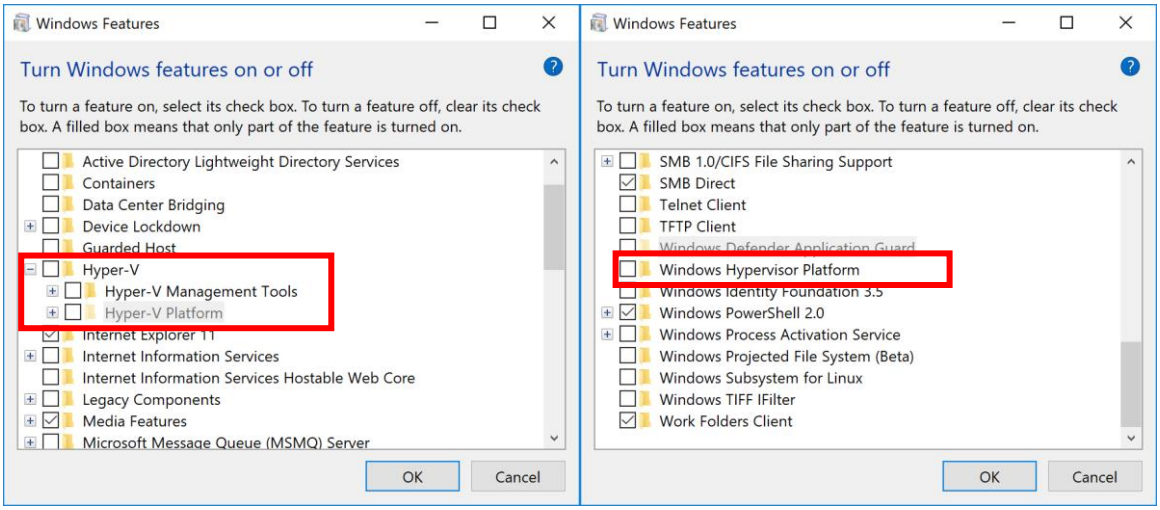

Figure B-1: Turn off all Hyper-V and Windows Hypervisor Platform options.

After turning off the Hyper-V and Hypervisor Platform settings, you'll need to reboot your computer before running VirtualBox again.

Turn on Virtualization in BIOS/UEFI Settings

If you've turned off Hyper-V and still have trouble using VirtualBox, you may need to enable virtualization. To turn on virtualization support, you'll need to reboot into your computer's BIOS or UEFI, the basic hardware settings for your PC.

In Windows 10, go to **Settings ▸ Update and Security ▸ Recovery ▸ Advanced startup ▸ Restart now** (or, enter `BIOS` into the Windows Search, and select **Change Advanced Startup Options ▸ Advanced startup ▸ Restart now**), as shown in Figure B-2.

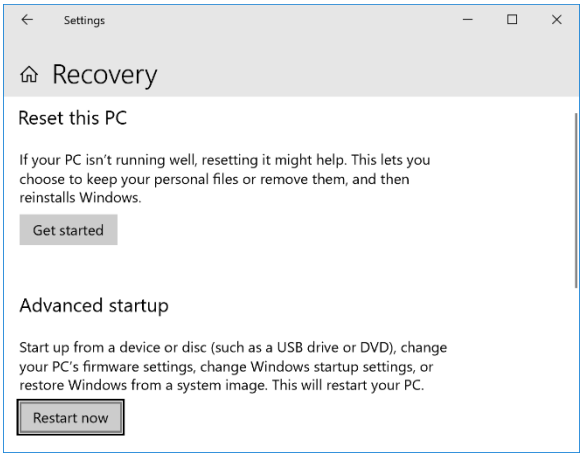

*Figure B-2: To enter BIOS from Windows 10, go to **Advanced startup** settings and click **Restart now**.*

Once you select **Restart now**, your computer should reboot into an advanced startup mode. Be careful when changing BIOS and startup settings—these settings can reset your entire PC and erase all

your files! Follow the steps below, and you'll only change the options that relate to running your VMs correctly.

From the blue startup menu, use your keyboard's arrow keys to select **Troubleshoot** and press ENTER, then select **Advanced options** and press ENTER again, as shown in Figure B-3.

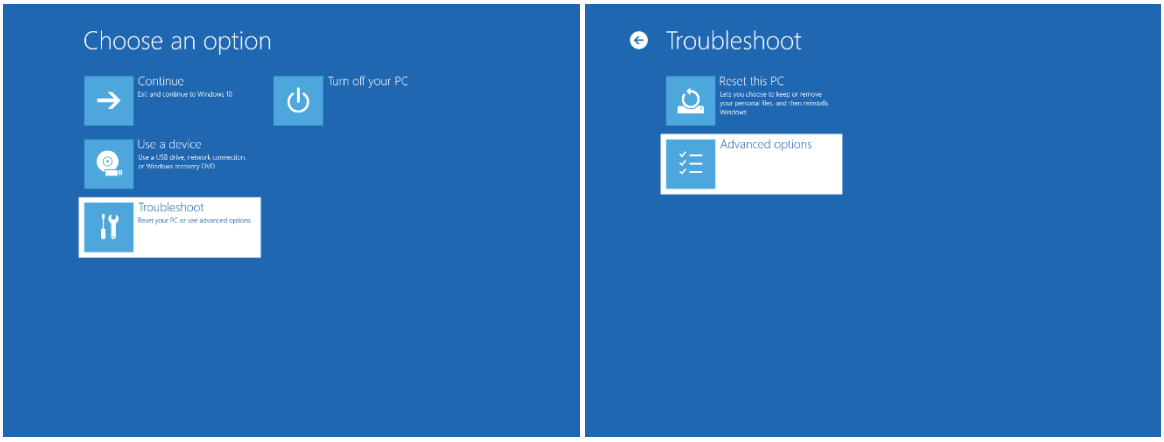

*Figure B-3: In the advanced startup menu, choose **Troubleshoot** and press ENTER, then select **Advanced options** and press ENTER again.*

The Advanced options menu screen contains useful tools for troubleshooting and fixing your PC, including System Restore and Startup Repair. At the bottom right of this menu, select the option for either **UEFI Firmware Settings** or **Startup Settings**, as shown in Figure B-4.

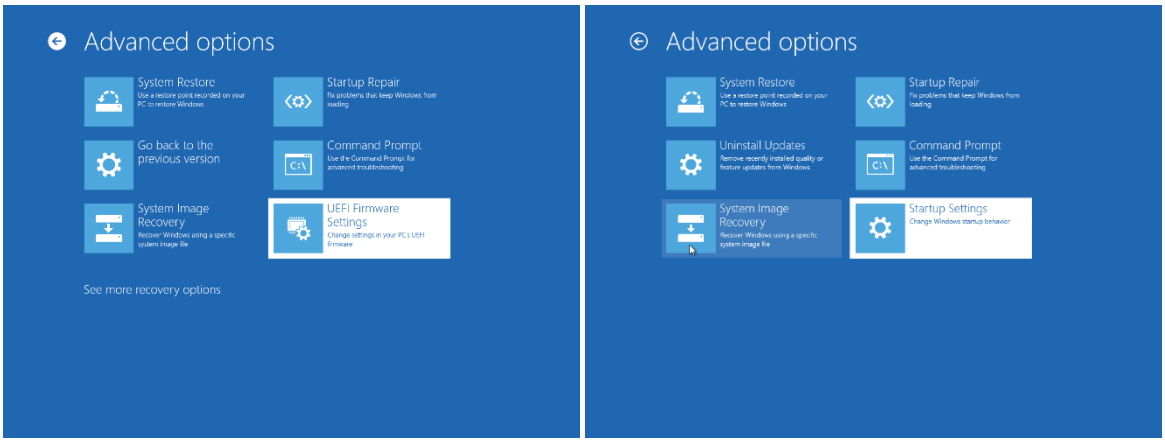

*Figure B-4: Select **UEFI Firmware Settings** or **Startup Settings**, and press ENTER, then click **Restart**.*

Once you select **UEFI Firmware Settings** or **Startup Settings**, press ENTER, then click **Restart**. If your computer uses the newer UEFI firmware settings, you should see the UEFI settings menu when the computer restarts. If your computer uses the older BIOS startup settings, you may need to press a special key to enter BIOS as the computer restarts.

Note: *On older computers, including those running previous versions of Windows, you can access BIOS when you first turn the computer on. You should see a brief screen at startup showing a special key (F12, DEL, ESC, or similar) to enter the BIOS setup menu. If you can't find the key, do a web search for "BIOS settings" for your computer model or manufacturer. You may need to hold the key down or press it repeatedly immediately after powering on your computer.*

Once you've entered your startup BIOS or UEFI settings, find the virtualization settings, and turn them on. You'll probably need to navigate the old-fashioned-looking menu using your arrow keys, spacebar, or ENTER key. Every brand of PC has a slightly different BIOS, so just look for menu options that say something like Virtualization Technology, VT-x, or VT-d, usually under Advanced, System, or CPU settings. Enable or turn on virtualization, save your changes, and exit to reboot into Windows. Restart VirtualBox and open the Kali VM again.

One Last Issue: Certain Antivirus Programs

If you've tried all the virtualization settings above, downloaded and reinstalled the correct VirtualBox and VM files, and your VM still won't start, your computer's antivirus software might be blocking VirtualBox. Search online for whether others are encountering the same trouble (my students have had trouble with WebRoot SecureAnywhere, as well as some versions of Avast and Symantec)—you may be able to add an exclusion for VirtualBox so that the antivirus software won't interfere with it. As a last resort, try using a computer with a different antivirus app, or change antivirus programs. This issue should be rare, but it's a good last tip to know in case you still have trouble running VirtualBox.