Tutorial for loading Windows or Ubnutu on NVMe SSD for non-compatable Motherboard

Now, first thing's first. This is how I did it. This is written with limited experimentation. Every system is different. If you run into an issue, then you must consult the collection of posts from the ("collection of post for Clover bootloader.docx" file included) and the forum on winraid.level1tech.com. It was one long road and full of pitfalls, but a comprehensive tutorial needs to be made on the subject, and this is the attempt to do so. Going in blind will only hurt you. Unfortunately, you need to read up on as many posts to understand what is happening. You don't need to read all of them but the main important ones which are in the file.

You will be using clover OS which is built with linux. You shouldn’t need to worry about that.

You do need to understand how to build a clover config file. It's not hard. Don't freak. It's not that many settings you need to change. Make sure you use Notepad++.

Installing Ubuntu or other flavors of Linux is easy but I will show Windows 7 because that's the only way to get a true genuine version of windows 10 and above. However, I just ended up using Win10 I couldn't get Win7 to work.

This should work only using the MBR (legacy) booting. I’ve done it before using ubuntu.

Things needed.

* NVMe adapter. Will work in graphics card slot (PCI x 16) or that other PCI slot for sound cards... PCI x 4? I don't know.
* NVMe SSD drive that's Gpt activated ( this is done inside windows with DISKPART)
* 2 Flash drives(Note: A harddirve can be used, you just need to check the option within BDU) Note: a CD or DVD cannot be used with clover
* Linux Installation medium (this does not need to be prepared)
* The machine you are modding with a Windows OS already installed on it.
* The correct version of BDU ( I think it is BDU 2.1.2019.024 beta)
* The correct version of the Clover ISO (CloverISO-4961.tar.lzma)
* Prepared Clover boot disk
* Prepared Windows 7 OS medium… if that's your choice ( MS NVMe Hotfixes for win7/W2k8) (Note: if installing win 10, you don’t need to prepare it as it already has NVMe drivers)
  + Windows ADK toolkit
  + windows disk
  + hotfixes
  + drivers (I’m sorry. I do not know the necessary drivers required (Phase 1, Method 1)
* NVMe driver for Clover USB (NvmExpressDxe-64.efi) Note: it will be auto-generated for you.

PHASE 1 - Preparing windows (3 possible methods!)

**METHOD 1**

Note: this didn’t work for me, cause this pretty complex. I heard that there is a tool that can do this for you. I don’t know the name of it. Sorry. I think it was in a post somewhere.

You need to be able to find a driver as well. I really don’t understand what this part is about at all. There's a whole post dedicated to this on winraid.level1tech.com somewhere.

1. Install the [latest Windows ADK for Windows 8.1 update](https://learn.microsoft.com/windows-hardware/get-started/adk-install). https://learn.microsoft.com/windows-hardware/get-started/adk-install
2. Create local folders c:\temp\src c:\temp\mount, c:\temp\winremount, c:\temp\hotfix, and c:\temp\drivers.
3. Copy the setup files from the DVD or a mounted ISO to C:\temp\src.
4. Copy the hotfix (.msu or .cab files) to C:\temp\hotfix.
5. Copy the driver files to c:\temp\drivers.
6. Run Command Prompt as an administrative.
7. Running the following Deployment Image Servicing and Management (DISM) commands will Insert the hotfixes and drivers to the boot.wim and update the sources folder. For more information about DISM, see the [DISM Operating System Package Servicing Command-Line Options](https://technet.microsoft.com/en-us/library/hh825265.aspx).https://technet.microsoft.com/en-us/library/hh825265.aspx

dism /Mount-Image /ImageFile:c:\temp\src\sources\boot.wim /Index:1 /MountDir:c:\temp\mount  
dism /Image:C:\temp\mount /Add-Package /PackagePath:c:\temp\hotfix  
dism /Image:C:\temp\mount /Add-Driver /Driver:c:\temp\drivers /Recurse  
dism /Unmount-Image /MountDir:C:\temp\mount /Commit  
dism /Mount-Image /ImageFile:c:\temp\src\sources\boot.wim /Index:2 /MountDir:c:\temp\mount  
dism /Image:C:\temp\mount /Add-Package /PackagePath:c:\temp\hotfix  
dism /Image:C:\temp\mount /Add-Driver /Driver:c:\temp\drivers /Recurse  
  
Now, copy this directory C:\temp\mount\sources to c:\temp\src\sources.

1. Now, run this command

dism /Unmount-Image /MountDir:C:\temp\mount /commit

1. Obtain the index from the Install.wim information by running the following command, and then count how many indexes to see how many indexes have to be updated.

dism /Get-WimInfo /WimFile:c:\temp\src\sources\install.wim

1. Insert the hotfixes and drivers to install.wim and winre.wim by running the following commands:

dism /Mount-Image /ImageFile:c:\temp\src\sources\install.wim /Index:1 /MountDir:c:\temp\mount  
dism /Image:C:\temp\mount /Add-Package /PackagePath:c:\temp\hotfix  
dism /Image:C:\temp\mount /Add-Driver /Driver:c:\temp\drivers /Recurse  
dism /Mount-Image /ImageFile:c:\temp\mount\windows\system32\recovery\winre.wim /Index:1 /MountDir:c:\temp\winremount  
dism /Image:C:\temp\mount /Add-Package /PackagePath:c:\temp\hotfix  
dism /Image:C:\temp\mount /Add-Driver /Driver:c:\temp\drivers /Recurse  
dism /Unmount-Wim /MountDir:C:\temp\winremount /Commit  
dism /Unmount-Wim /MountDir:C:\temp\mount /Commit

Note If there are multiple indexes in step 8, then run all these for each one changing index number one by one.

(Note: if the 4th command down (second mounting command) does not work then you may not have any more indexes needing to be updated for the winre.wim file. but you still need to continue running the first 3 commands for each index (updating install.wim) then the last one to unmount the image.)

1. Run the *second* of the following oscdimg commands unless you are using MBR (legacy boot stlye). For more information about oscdimg, see the [Oscdimg Command-Line Options](https://technet.microsoft.com/en-us/library/cc749036%28v=ws.10%29.aspx). https://technet.microsoft.com/en-us/library/cc749036%28v=ws.10%29.aspx

*Note: if oscdimg is not found then you need to put the oscdimg.exe file into your Systems 32 folder. you can find this at this directory if you did step 1 and installed ADK toolkit*

C:\Program Files (x86)\Windows Kits\10\Assessment and Deployment Kit\Deployment Tools\amd64\Oscdimg

For Legacy BIOS Boot mode:

oscdimg -LTEST -m -u2 -bC:\temp\src\boot\etfsboot.com C:\temp\src C:\temp\Win7.NVME.ISO

For Legacy and UEFI BIOS multiple Boot mode:

oscdimg -LTEST -m -u2 -bootdata:2#p0,e,bC:\temp\src\boot\etfsboot.com#pEF,e,bC:\temp\src\efi\microsoft\boot\efisys.bin C:\temp\src C:\temp\Win7.NVME.ISO

1. Use Rufus to make a bootable USB.

**Method 2 –** Note: (FYI: This didn’t work for me, probably because my version of windows was not Genuine.)

**Note: VERY IMPORTANT -** If you do this method you will have to read Post #245 (MikeyLikesiT) of the collection of posts for NVMe installation on Windows 7 on winraid.level1techs.com

Doing this method will change how you do the rest of the process.

This is the condensed version  
1. Follow NVME/Clover thread to set up Clover USB.  
2. Install Win7 on SSD thru legacy BIOS.  
3. Upgrade Win7 to Win10, in-place within Win7. (Note: use a genuine disk. Will help.)  
4. Install cloner and clone Win10 SSD to NVME (clonezilla live boot cd works great)  
5. Log into Win10 on SSD and convert NVME from MBR to GPT.

If MBR2GPT is not located you need WinPE. Either download or make yourself with copype tool which is only installed with adk and adk PE addon

6. Use Clover USB to boot into Clover and choose, start Windows EFI to boot into NVME.  
7. Use reagentc.exe commands to rebuild Recovery Partition on Win10 NVME.  
8. Clean up Clover boot USB files and leave the USB key in for every boot.

Note: (FYI: This didn’t work for me, probably because my version of windows was NOT Genuine.)

**Method 3** – Find and download a UEFI ready Windows 7 or 10 disk. I think windows 10 automatically comes with NVMe drivers.

Note:( this worked for me even though it was not genuine.)

PHASE 2 - Get a working Clover key (bootable usb)

You shouldn't have to enter the clover shell and pray you do not because that is a rabbit hole that leads to nowhere.

Steps

1. insert blank NVMe and start-up
2. boot into windows and format the NVMe
   1. goto command line type diskpart
   2. List disk > select disk (the one that is the NVMe)
   3. Run clean
   4. Run convert gpt
   5. Then format it to NTFS *if installing windows.* ext4 for linux (note: you may have to format the whole drive first then convert to gpt)
3. copy the Clover ISO to wherever the root of the BDU folder that you downloaded (CloverISO-4961.tar.lzma)
4. Run BDU 2.1.2019.024b 🡨this version exactly!!
5. go into configuration and make sure that it is using the ISO in local folder
6. hit Format
7. now make sure the flash drive has a partition in it that is 200 MB, if not hit format again until it does
8. When it does work, Create these new directories on flash drive if they do not already exist
   1. Efi\CLOVER\drivers\bios
   2. Efi\CLOVER\drivers\uefi
   3. EFI\CLOVER\dirvers64
   4. EFI\CLOVER\drivers32uefi
   5. EFI\CLOVER\dirvers64uefi
9. enter this location CLOVER :\EFI\CLOVER\drivers-Off\ and look for the NVMe driver
   1. Note: this folder should contain the auto generated drivers for your system.

Note: NvmExpressDxe-64.efi is the only file you need. But in case it does not work for you then find and use all of the ones below. I think these are the important drivers you need to look for (ii and iii most important) they should be in the drivers-Off folder. So I just dumped them all in all 5 folders hoping for the best. It won't hurt anything putting them in there. I believe that I only needed NvmExpressDxe-64.efi UEFI, not sure with MBR.

* + 1. i. nvm.efi
    2. ii. NvmExpressDxe.efi
    3. iii. NvmExpressDxe-64.efi
    4. iv. GrubEXFAT-64.efi
    5. v. GrubISO9660-64.efi
    6. vi. GrubNTFS-64.efi
    7. vii. GrubLDF-64.efi

1. copy the driver into all 5 directories made in step 7
2. Edit **\EFI\CLOVER\config.plist** with notepad ++ or another sophisticated editor (Note:using window’s notepad will destroy it).  
     
   Change the value:  
     
   **<key>Timeout</key>  
   <integer>5</integer>**

To **<integer>3</integer>**

1. insert OS installation medium
2. enter bios and turn on UEFI mode. If you are running this in Legacy then skip this step.
3. boot into clover(you might have to turn on and off the UEFI settings if it doesn’t first boot up)
4. If you got in then you have successfully made a clover key BUT you will not see your harddrive until you install an OS!

PHASE 3 – Installation and Finalization (configuring clover)

NOTE:If you chose method 2 in Phase 1 then these final steps will be a little different.

1. Just insert clover, and installation medium and make sure it boots into clover.

2. If you cannot boot the installation medium from within clover then you have to just boot directly into the installation medium. This is NOT preferred but it will most likely work anyways, so don’t freak, lol.

Everything should be done this is really just tiding things up and making it smooth. If you had issues im sorry. you have to read as many posts as you can to understand what to do next.

Here are some reminders if it’s not working for you. clover does not find harddrives only installed OSes. You have to run BDU on the computer with the NVMe. The drive needs to be in gpt even if you are booting clover in MBR. And get your rest. That will help a lot!

1. Find out the name of the bootable harddrive within clover. The name might be a weird name like EFI or Boot or something. It shouldn’t be a GUID address. If it is then something is wrong and I don’t think you’ll be able to boot into it. Let alone select it.
2. Clover should automagically boot into any OS that works. So the default should have been changed to 3 seconds but if you want it instant, do this.
3. boot into windows
4. Find config.plst file on clover USB and open it
5. Ctrl+F for the boot section. It should be in the same location as the timeout in step 11 phase 2
6. Don’t be scared, what you are seeing are basic settings you can change. Just instead of clicking a mouse you are typing numbers and such.
7. If timeout it at 0 it will be instant
8. Make sure the name of the drive (as it appears in CLOVER) is entered into the default volume.
9. More information at sourceforge.com . Google “clover sourceforge” click on it then > Wiki > Table of contents > configuration > boot. This will give you the info you need.