Rebooting a Computer

Introduction

This guide covers how to reboot a target computer with a Collection Key in order to scan or image it.

This document applies to the following applications		
ADFPRO Mobile & Computer Triage	DEI Digital Evidence Investigator	

Why Reboot a Computer?

The ADF Collection Key contains its own Operating System capable of booting x64 computers (Intel and AMD processors) and, starting with version 6.4.0, ARM64 computers, such as laptops with Qualcomm Snapdragon processors.. Using this method has a few advantages:

- The target computer boots directly from the known Operating System of the Collection Key and not the unknown Operating System of the target computer.
- This method is forensically sound and no data is changed on the target computer's hard drive(s).
- This method bypasses the user logins and other protective mechanisms that may be in place on the target computer.
- This method allows access to hard drives where it may not be possible to remove them from the target. For example, some laptops now have on board storage rather than a traditional hard drive.
- This method does not bypass hard-drive encryption and the password or key will have to be provided to access the data.

Rebooting a Windows Computer

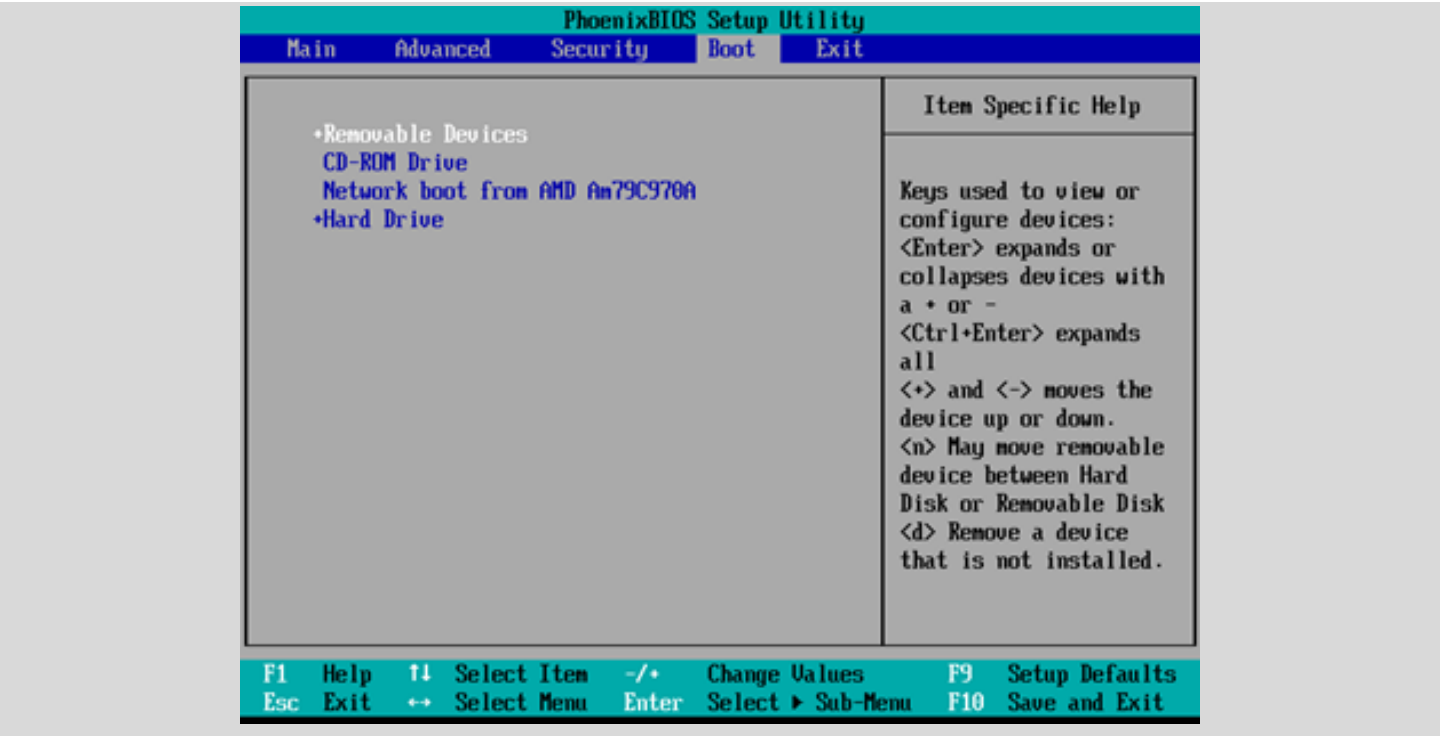
Most target computers will have to be configured to boot from the Collection Key. Computer manufacturers facilitate two ways to do this. Within the BIOS or UEFI settings there is generally a boot sequence area where the computer may be configured to boot from a removable device first, or alternatively many manufacturers provide a single use boot menu. Access to either the BIOS/UEFI settings or the single use boot menu is achieved by a user repeatedly pressing a hotkey on start up. The precise hotkey needed varies from manufacturer to manufacturer and model to model. Prior to booting, operators should research the appropriate manufacturers website to establish how to boot from a removable device.

The Collection Key can boot computers with UEFI Secure Boot enabled. ARM64 computers can only be booted with a Collection Key prepared with the GPT partition scheme (see the Preparing Collection Keys guide).

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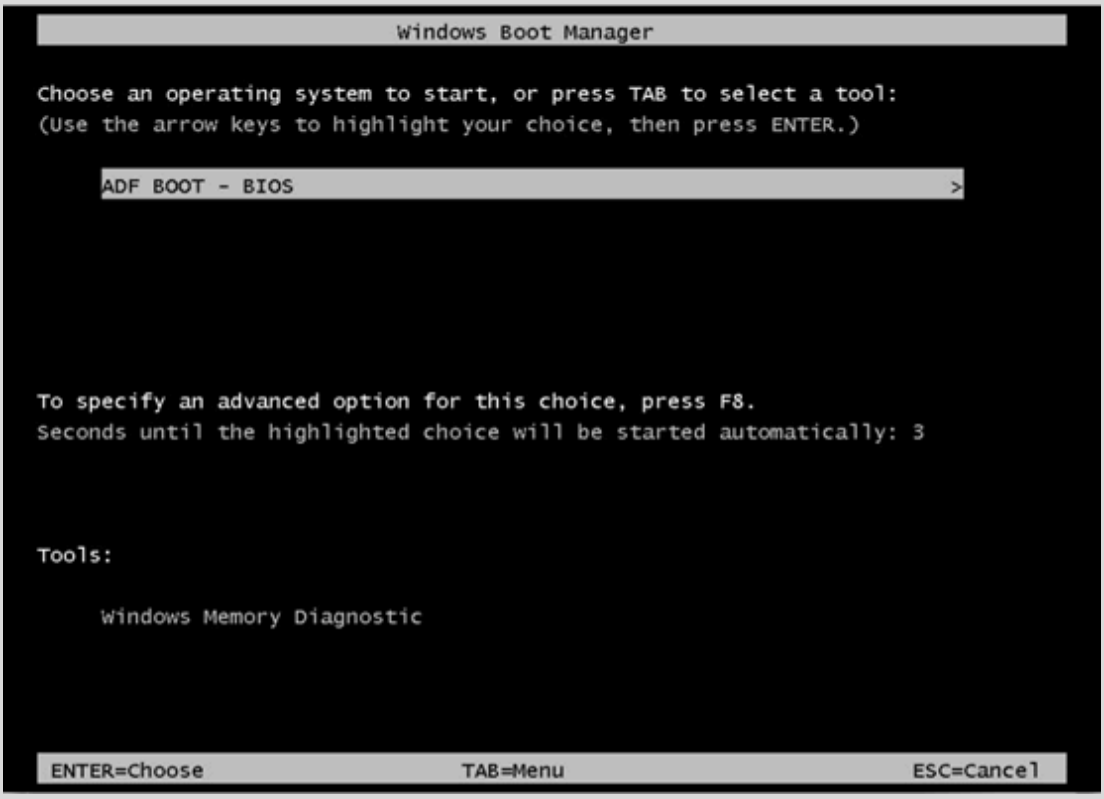
Configuring the Boot Process in Bios/UEFI

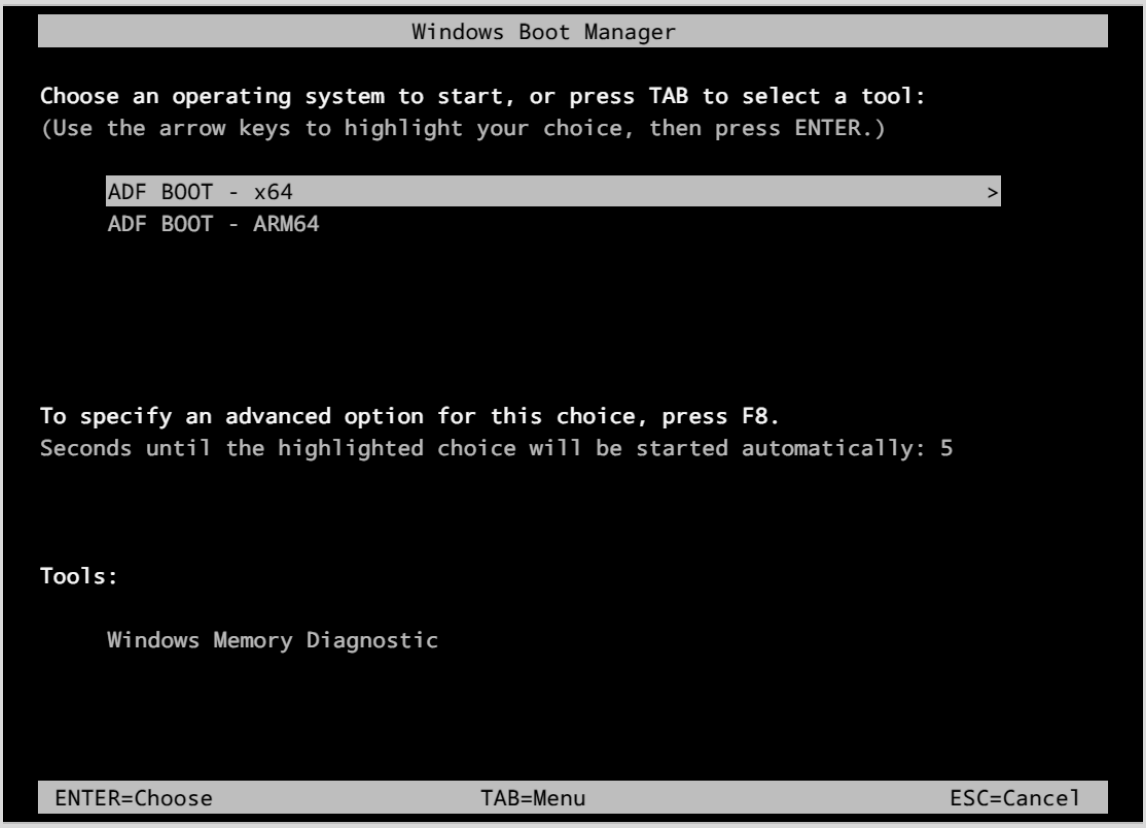
1. Research the Bios/UEFI settings Hotkey from the manufacturer.
2. Make a note to revert the changes you are about to make in the Bios/UEFI settings.
3. Locate the hotkey on the target computer and be prepared to press it.
4. Connect the Collection Key.
5. Turn the target computer ON and start pressing the hotkey multiple times without holding it down.
6. Once in the Bios/UEFI settings, locate the boot menu and reorder to boot from:
    a. Removable Device (sometimes referred to USB HDD or similar)
    b. CD-ROM Drive
    c. Hard Drive



7. Save the changes and exit and let the computer restart.
8. Make sure you see an ADF BOOT option in the Windows Boot Manager: ADF BOOT - BIOS on computers started in legacy BIOS mode, or ADF BOOT - x64 and ADF BOOT - ARM64 on computers started in UEFI mode. In UEFI mode, select ADF BOOT - x64 on Intel and AMD computers and ADF BOOT - ARM64 on ARM64 computers. If no ADF BOOT option is shown, turn the target computer OFF and try again.

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Configuring the Boot Process in Boot Menu

This method is generally simpler than having to access the Bios/UEFI settings but it is not always available.

1. Research the single-use Boot Menu Hotkey from the manufacturer.
2. Locate the hotkey on the target computer and be prepared to press it.
3. Connect the Collection Key.
4. Turn the target computer ON and start pressing the hotkey multiple times without holding it down.
5. Once in the Boot Menu, identify the option that corresponds to the Collection Key from the list and press its number. The Collection Key might be listed as “Removable Device” or the make and model of the key.



6. Make sure you see an ADF BOOT option in the Windows Boot Manager: ADF BOOT - BIOS on computers started in legacy BIOS mode, or ADF BOOT - x64 and ADF BOOT - ARM64 on computers started in UEFI mode. In UEFI mode, select ADF BOOT - x64 on Intel and AMD computers and ADF BOOT - ARM64 on ARM64 computers. If no ADF BOOT option is shown, turn the target computer OFF and try again.

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Fast Boot/Ultra-Fast Boot Enabled Computers

Fast Boot is a feature of UEFI that allows a computer to boot faster. The following booting issues are created when Fast Boot or Ultra-Fast Boot are enabled on the target computer:

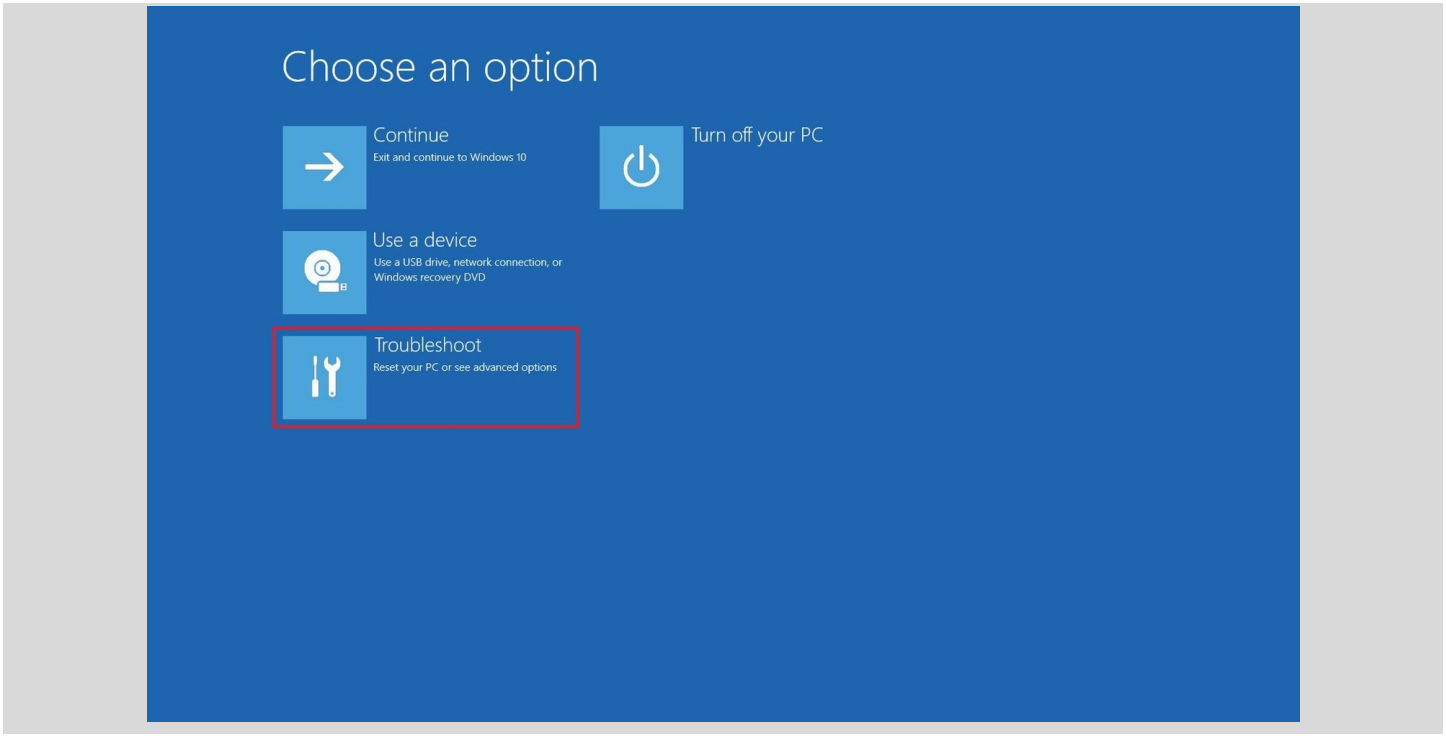
1. Fast Boot - Booting from a USB Device is disabled.
2. Ultra-Fast - Booting from a USB device is disabled as well as access to the UEFI setup screen.

Fast Boot can be turned off by accessing the UEFI settings via the appropriate hotkey and modifying the Fast Boot configuration. Please consult the relevant computer manufacturer's website for details on how to modify this setting.

Inadvertent Boot to Windows 8/10/11

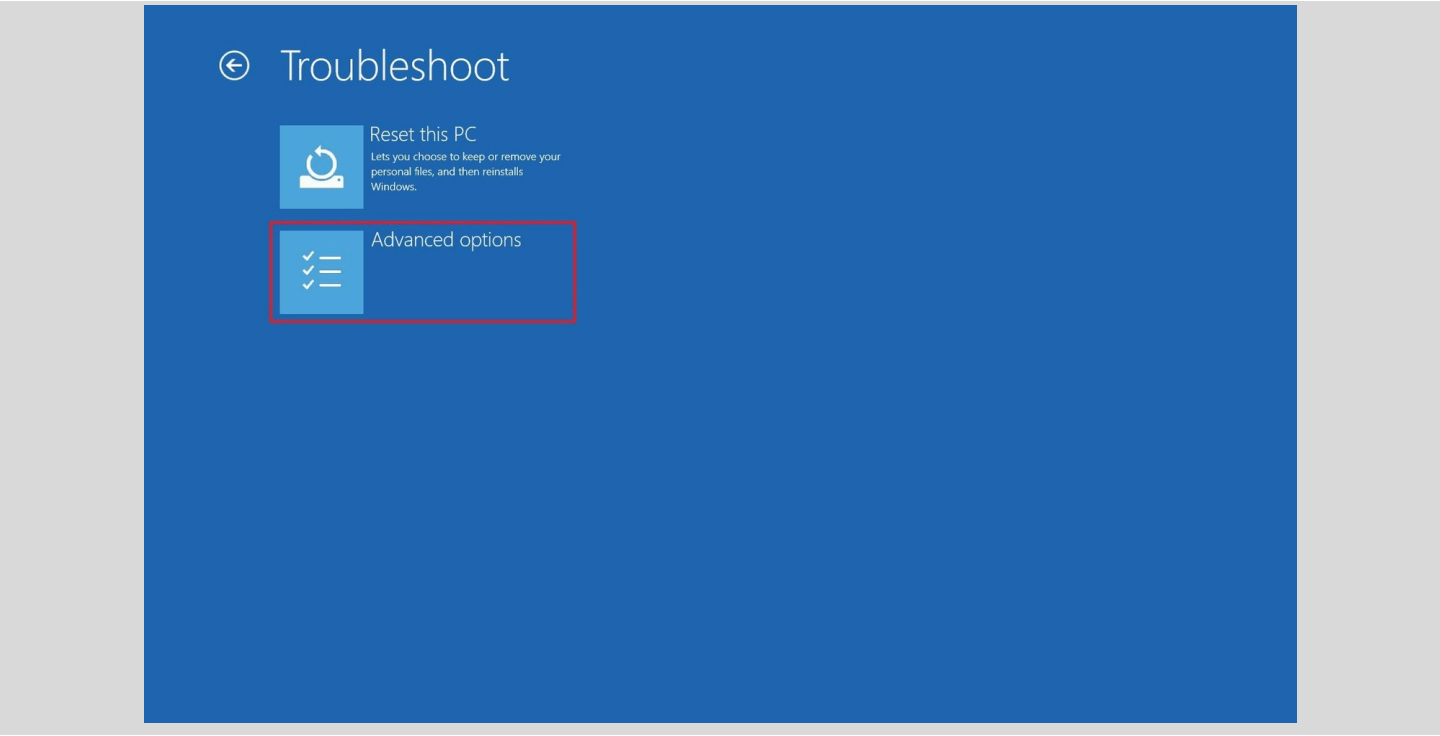
If the UEFI settings cannot be accessed or Windows has been inadvertently booted here is another method to restart automatically and access UEFI settings.

1. On the live computer, find the option to restart.
2. Hold down the Shift key and select restart computer. This method also works if Windows is not signed into, and the login screen is displayed allowing access to the restart menu option. If the computer signed in automatically, click the Restart option from the Start menu while holding the shift key down.
3. While shutting down Choose Troubleshoot from the menu options.

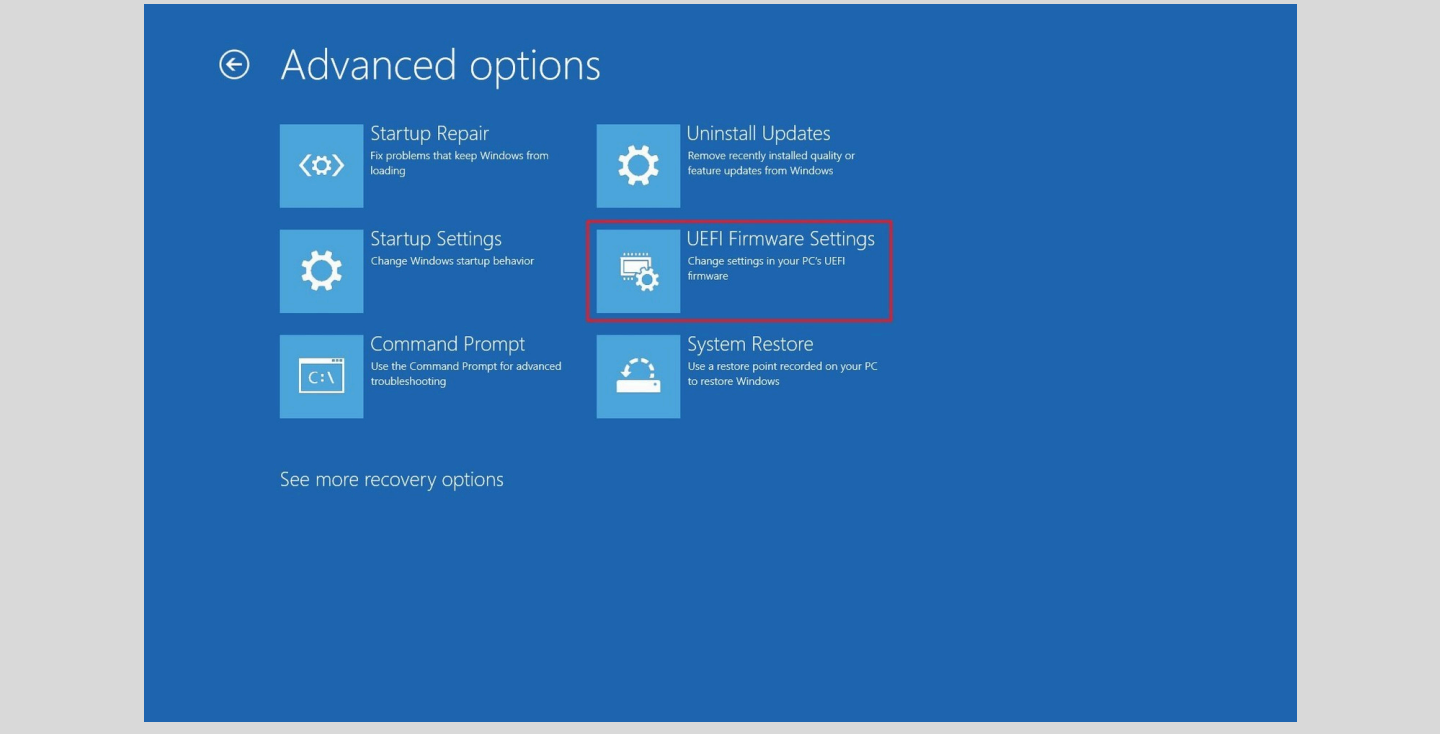


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4. Choose Advanced Options.



5. Select UEFI Firmware Settings.



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6. Choose restart to UEFI Settings. The computer will restart and allow access to the UEFI Firmware settings.

Rebooting a Mac Computer



To scan Mac computers, please use the remote agent instead as described in the Mac/Windows Scan from the Remote Agent section of the Scanning a Target guide.

Adding Drivers to the WinPE Image

When trying to boot a target computer it is possible that some hardware components are not natively supported by WinPE which is the Operating System used by our bootable Collection Key. Advanced users have the ability to add drivers to the WinPE image of the Collection Key.
To add drivers:

- Make sure to install the Windows ADK and WinPE add-on. See instructions in the Installing the ADF Application guide.
- Locate the current WinPE image "C:\ProgramData\ADF Solutions Inc\v4\WinPE\build\boot_image.iso" and delete it (or back it up).
- Place the driver files including the *.inf file in a sub-folder of “C:\ProgramData\ADF Solutions Inc\v4\WinPE\drivers.in” for x64 (Intel and AMD) computers, or of “C:\ProgramData\ADF Solutions Inc\v4\WinPE\drivers_arm64.in” for ARM64 computers. Note that the driver cannot be in an archive file.
- Rename the folder “drivers.in” to “drivers”, or “drivers_arm64.in” to “drivers_arm64”.
- Prepare the Collection Key and it will create a new boot_image.iso containing the new drivers.

Drivers added this way are removed when the ADF application is upgraded or reinstalled. Keep a copy of them and add them again after an upgrade.
The built-in keyboard and touchpad of some laptops need chipset-specific Serial IO drivers that WinPE does not include. If they do not respond after booting from the Collection Key, connect a USB keyboard and mouse, or add the Serial IO drivers of that laptop as described above.

BIOS HotKey Table

Manufacturer	Boot Menu	BIOS/UEFI Setup	Notes
Acer	F12	F2 (desktops: Del)	The F12 Boot Menu must first be enabled in the BIOS Setup (Main tab).
ASUS laptops and all-in-ones	Esc	F2	Hold Esc while turning the computer on.

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ASUS desktops	F8 (from the BIOS Setup)	Del or F2	
Dell	F12	F2	Also on ARM64 models such as the XPS 13 9345.
Dynabook (Toshiba)	F12	F2	
Fujitsu	F12	F2	
Getac	F10	F2	Tablets: press the Menu button or tap the screen during startup instead of F10.
GIGABYTE / AORUS	F12	F2 (desktops: Del)	
HP	Esc, then F9	Esc, then F10	Esc opens the Startup Menu. On desktops, F9 and F10 also work directly.
Huawei	F12	F2	MateBook E 2-in-1: Power + Volume Up opens the BIOS Setup.
Intel NUC / ASUS NUC	F10	F2	
Lenovo ThinkPad, ThinkCentre, ThinkStation	F12	F1	On some keyboards Fn+F12 / Fn+F1.
Lenovo IdeaPad, Yoga, Legion	F12 (Fn+F12) or Novo button	F2 (Fn+F2) or Novo button	The Novo button is a small button or pinhole; press it with the computer off, then choose Boot Menu or BIOS Setup.
LG gram	F10	F2	
Microsoft Surface	Hold Volume Down, press and release Power	Hold Volume Up, press and release Power	Start from a full shutdown and release the volume button when the logo appears. Includes ARM64 models (Surface Pro X, Pro 11, Laptop 7). Boot from USB devices must be enabled in Surface UEFI.
MSI	F11	Del	
Panasonic TOUGHBOOK	F2 or Del, then Exit > Boot Override	F2 or Del	F12 starts a network (LAN) boot, not the boot menu.
Razer	F12	F1 or Del	
Samsung Galaxy Book	F10	F2	
Xiaomi / Redmi	F12	F2	

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