BIOS Update Readme

BIOS Update Instructions for ASUS® NUCs with Aptio® V UEFI Firmware

This readme file includes BIOS update instructions for advanced users.

The following methods are available to update ASUS® NUC to the latest version.

- Express BIOS Update (Windows-based)
- F7 BIOS Update
- Power Button Menu BIOS Update
- UEFI Update
- BIOS Recovery Update

Important Notes:

- Once the update process has started, **DO NOT POWER DOWN YOUR SYSTEM** before the update is complete. The update process will take up to 3 minutes.
- Downgrading the BIOS to an earlier version isn't recommended and might not be supported. An earlier BIOS version might not offer support for the latest processors, bug fixes, critical security updates, or support the latest board revisions currently being manufactured. **If you're trying to downgrade to a previous BIOS version and its Intel® ME Firmware version is older than that currently on the motherboard, then the downgrade is NOT supported.**
- There may be a situation where the BIOS doesn't see your USB flash drive during an update or recovery. If this happens, try to reformat the USB flash drive as FAT32 format, but de-select **Quick Format**. Then try the process again. You can find out more information in the section of Troubleshooting BIOS Issus on ASUS® NUC
- If a BIOS update process is interrupted, your computer may not function properly. We recommend the process be done in an environment with a steady power supply (preferably with a UPS).
- Before you start, record all BIOS settings that have been changed from default, so they can be restored after completing the BIOS update if needed.

Express BIOS Update (Windows-Based) Instructions

1. Download the Express BIOS Update file to the target ASUS NUC.
2. Double-click the *.EBU.exe file to run the Windows-based BIOS update.
3. Follow all prompts.

F7 BIOS Update Instructions

The F7 BIOS Update option allows you to update the system BIOS during the boot process and before the operating system loads.

1. Download the **.CAP** BIOS file and transfer it to a USB flash drive.
2. Plug the USB device into a USB port of the ASUS NUC when it's turned off (not in Hibernate or Sleep mode).
3. Turn on (or restart) the ASUS NUC.
4. During boot, when the POST screen F-key prompts are displayed, press F7 to enter the BIOS Flash Update screen.
5. Select the USB device and press Enter.
6. Select the .CAP file and press Enter.
7. Confirm you want to update the BIOS by pressing Enter.
8. Wait 2-5 minutes for the update to complete.
9. The system will restart when the flash update has completed.
10. Remove the USB flash drive.

Power Button Menu BIOS Update Instructions

The Power Button Menu Update allows you to update the system BIOS during the boot process and before the operating system loads.

1. Download the **.CAP** BIOS file and transfer it to the root directory of the USB flash drive.
2. Plug the USB device into a USB port of the ASUS NUC when it's turned off (not in Hibernate or Sleep mode).
3. Press and hold down the power button for three seconds, then release it before the 4 -second shutdown override.
4. The Power Button Menu displays. Press F7 to start a BIOS update.
5. Wait 2-5 minutes for the update to complete.
6. The computer either turns off when the recovery process is completed, or it prompts you to turn it off.
7. Remove the USB flash drive.
8. Restart the computer.

UEFI Update Instructions

1. Download the UEFI Flash BIOS Update file.
2. Unzip the UEFI.ZIP to extract its files.
3. Copy the extracted folder, which contains the **.CAP** file and UEFI Flash tool, to a bootable FAT32 formatted USB flash drive*.
4. Plug the USB flash drive into a USB port of the ASUS NUC when it's turned off (not in Hibernate or Sleep mode).
5. Configure the BIOS of the target computer to boot to the EFI Shell:
    a. Power on the system, Press **F2** during start to enter BIOS Setup.
    b. Go to *Boot > Secure Boot > Secure Boot.*
    c. Disable **Secure Boot**, if enabled.
    d. Go to *Boot > Boot Priority > Internal UEFI Shell*
    e. Enable **Internal UEFI Shell**
    f. Press **F10** to save changes and exit BIOS Setup.
6. Press **F10** during boot to open the Boot Menu.
7. Select **UEFI: Built-in EFI Shell.**
8. Change the current directory to the USB flash drive by entering the command fsX: where X is the drive number of the USB flash drive from the device mapping list. Example: if your USB drive is fs0, then type **fs0:** and press enter.
9. At the command prompt, type: **iFlashVEfi64.efi XXX.CAP (**where XXX.CAP is the name of the .CAP file), then press **Enter**,
10. Press **Y** to reboot and begin the update.
11. Wait for the BIOS update to complete.
12. The computer will restart when finished.

After the BIOS update has completed, turn off the **Internal UEFI Shell** and turn on **Secure Boot** (if necessary).

Follow these instructions:

13. Press **F2** during start to enter BIOS setup.
14. Go to *Advanced > Boot > Secure Boot*.
15. Enable **Secure Boot**, if enabled.
16. Go to *Advanced > Boot > Boot Configuration*.
17. In the Boot Devices pane, disable **Internal UEFI Shell**.
18. Press **F10** to save changes and exit BIOS Setup.

BIOS Recovery Update Instructions

BIOS Recovery by the Power Button Menu

In the unlikely event that a BIOS update is interrupted, it's possible the BIOS might be left in an unusable state. Performing a BIOS Recovery can resolve this problem.

1. **Plug** an USB device into an USB port of the ASUS NUC when it's turned off (not in Hibernate or Sleep mode), then power up ASUS NUC.
2. **Download** and **Save** the *RECOVERY.zip* file for your ASUS NUC unit into that USB device.
3. **Extract/Unzip** the *RECOVERY.zip* file. Copy to the **ROOT** of the USB Flash Drive.
4. **Power Off** your ASUS NUC, keep the USB device in USB port.
5. **Press and hold down** the power button for three to four seconds, The Power LED should change to a yellow color for a brief second, when this happens **release the button** before the 10-second shutdown override.
6. The Power Button Menu appears.
7. **Press** *F4* to start a BIOS Recovery.
8. **Wait** 2-5 minutes for the update to complete.
9. The computer will either turn off when the recovery process is complete or it will prompt you to turn off the computer.
10. **Remove** the USB flash drive.
11. **Restart** the computer.

BIOS Recovery by the Security Jumper

1. Download the **RECOVERY.zip** file into an USB flash drive.
2. Unzip the file and transfer the **.CAP** file from the Recovery folder to the ROOT of a FAT32 formatted USB flash drive.
3. Turn off the ASUS NUC and unplug the AC power.
4. Open the chassis and remove the yellow BIOS security jumper from pins 1-2 so all 3 pins are cleared.
5. Plug the USB flash drive into a USB port and connect the AC power.
6. Turn on the ASUS NUC. If the USB flash drive and recovery CAP file are detected, a 20 second countdown will appear at the top of the screen. Press the ESC key to cancel. If not, the recovery process will start automatically.
7. Wait 2 – 5 minutes for the recovery process to complete.
8. The ASUS NUC will either turn off automatically when the recovery process is complete, or it will prompt you to turn it off.
9. Remove the USB device.
10. Unplug the AC power and replace the BIOS security jumper back onto pins 1-2.
11. Close the chassis and reattach the AC power.
12. Restart the ASUS NUC.

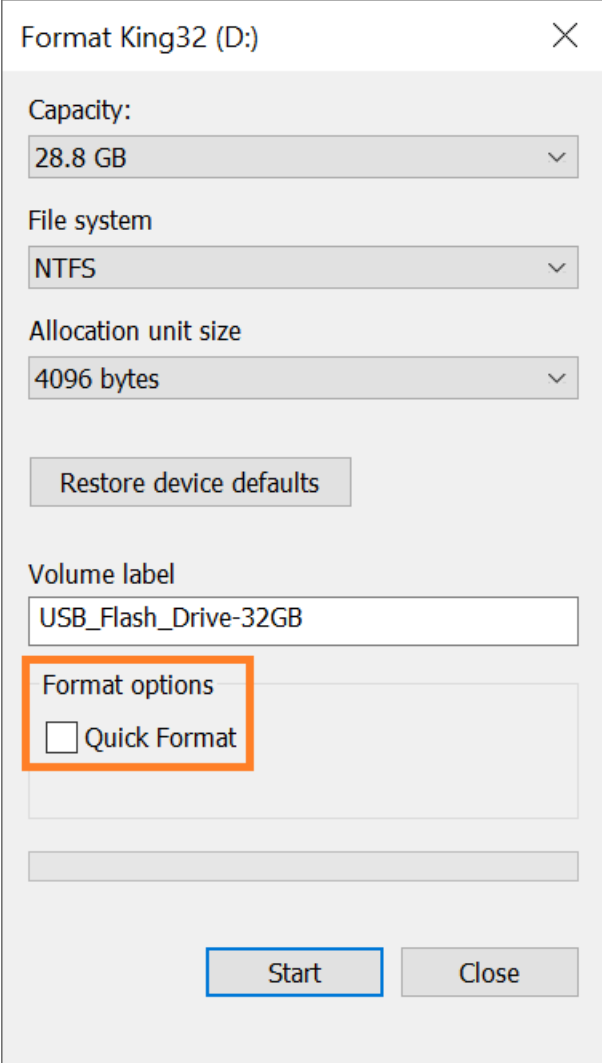### *Creating a Bootable USB Flash Drive
Refer to any of the following websites for tips on creating bootable USB devices. ASUS is unable to assist with the creation of bootable devices.

- [How to Boot from a USB Flash Drive](#)
- [Boot from USB Flash Drive](#)

You can also search for additional resources on the web for creating bootable USB devices. Search on "How to create bootable USB drives".

If the BIOS does not see the update/recovery file on the USB flash drive, try **reformatting** the USB flash drive with *Quick Format* unchecked and as FAT32 format File System.

Format King32 (D:)   ✕

Capacity:

28.8 GB   ⌄

File system

NTFS   ⌄

Allocation unit size

4096 bytes   ⌄

Restore device defaults

Volume label

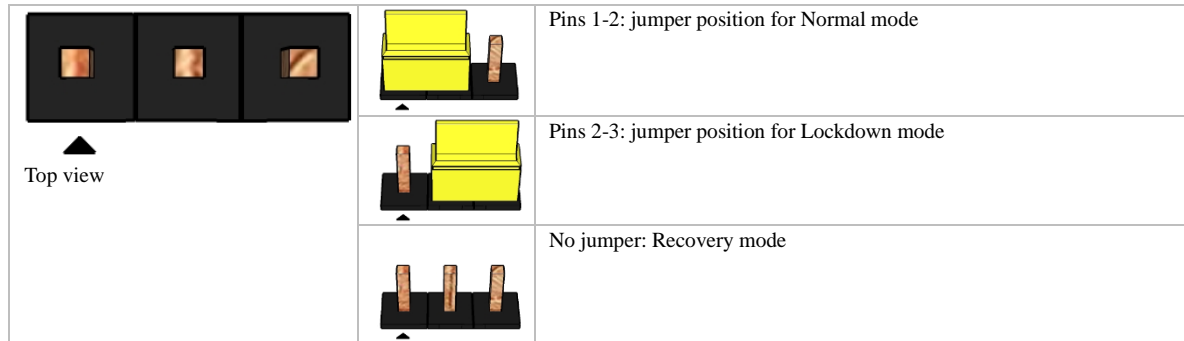USB_Flash_Drive-32GB

Format options

☐ Quick Format

Start   Close

BIOS Security Jumper

⚠️ **CAUTION**

Do not move a jumper with the power on. Always turn off the power and unplug the power cord from the computer before changing the jumper setting. Otherwise, the board could be damaged.

Figure 1: The Pins 1-2 and Pins 2-3 jumpers determine the BIOS Security program's mode.

Top view

Pins 1-2: jumper position for Normal mode

Pins 2-3: jumper position for Lockdown mode

No jumper: Recovery mode

The table below describes the jumper settings for the three modes: normal, lockdown, and configuration.

Function/Mode	Jumper Setting	Configuration
Normal	1-2	The BIOS uses current configuration information and passwords for booting.
Lockdown	2-3	The BIOS uses current configuration information and passwords for booting, except: • All POST Hotkeys are suppressed (prompts are not displayed and keys are not accepted. For example, F2 for BIOS Setup, F10 for the Boot Menu). • Power Button Menu is not available (see Section Power Button Menu). BIOS updates are not available except for automatic Recovery due to flash corruption.
Configuration	None	BIOS Recovery Update process if a matching *.CAP file is found. Recovery Update can be cancelled by pressing the Esc key. If the Recovery Update was cancelled or a matching *.CAP file was not found, a Config Menu will be displayed. The Config Menu consists of the following (followed by the Power Button Menu selections): [1] Suppress this menu until the BIOS Security Jumper is replaced. [2] Clear BIOS User and Supervisor Passwords. [3] Reset Intel® AMT to default factory settings.* [4] Clear Trusted Platform Module. **WARNING!** Data encrypted with the TPM will no longer be accessible if the TPM is cleared. [F2] BIOS Setup Menu. [F4] BIOS Recovery. [F5] Restore BIOS setup settings to the build time default. *Only on vPro systems. See Section Power Button Menu

Power Button Menu

As an alternative to Configuration Mode or normal POST hotkeys, the user can use the Power Button to access a menu with BIOS and boot options. The Power Button Menu is accessible via the following sequence:

1. System is in S4/S5 (Plugged in and powered off, not in G3).
2. The user pushes the Power Button and holds it down for 3 to 4 seconds.
3. The Power Button LED will be white or green in color for the first 3 seconds. After 3 seconds, the Power Button LED will flash to a yellow color to signal the user to release the Power Button.
4. User releases the Power Button before the 10 second shutdown override.

   If this boot path is taken, the BIOS will use default settings, ignoring settings in VPD where possible. At the point where Setup Entry/Boot would be in the normal boot path, the BIOS will display the following prompt and wait for a keystroke:

   If an unrecognized key is hit, then the BIOS will do nothing and wait for another keystroke. If one of the listed hotkeys is hit, the BIOS will follow the indicated boot path. Password requirements must still be honored.

Keystroke	Option	Description
[ESC]	Normal Boot	
[F2]	BIOS Setup Menu	Enter BIOS Setup
[F3]	Disable Fast Boot	Note: Will only be displayed if at least one Fast Boot optimization is enabled. If Disable Fast Boot is selected, the BIOS will disable all Fast Boot optimizations and reset the system.
[F4]	BIOS Recovery	Recover BIOS using a BIOS Recovery CAP file from the ROOT of a FAT32 formatted USB Flash Drive.
[F5]	Restore BIOS setup settings to the build time default	
[F7]	Update BIOS	Flash updated BIOS CAP file from a FAT32 formatted USB Flash Drive.
[F10]	Enter Boot Menu	One Time Boot Menu
[F12]	Network Boot	Wired LAN Boot Menu