



OpenCore

Reference Manual (0.9.~~1~~.2)

[2023.04.08]

3. DevirtualiseMmio

Type: plist boolean

Failsafe: false

Description: Remove runtime attribute from certain MMIO regions.

This quirk reduces the stolen memory footprint in the memory map by removing the runtime bit for known memory regions. This quirk may result in an increase of KASLR slides available but without additional measures, it is not necessarily compatible with the target board. This quirk typically frees between 64 and 256 megabytes of memory, present in the debug log, and on some platforms, is the only way to boot macOS, which otherwise fails with allocation errors at the bootloader stage.

This option is useful on all types of firmware, except for some very old ones such as Sandy Bridge. On certain firmware, a list of addresses that need virtual addresses for proper NVRAM and hibernation functionality may be required. Use the `MmioWhitelist` section for this.

4. DisableSingleUser

Type: plist boolean

Failsafe: false

Description: Disable single user mode.

This is a security option that restricts the activation of single user mode by ignoring the `CMD+S` hotkey and the `-s` boot argument. The behaviour with this quirk enabled is supposed to match T2-based model behaviour. Refer to this archived article to understand how to use single user mode with this quirk enabled.

[Note: When Apple Secure Boot is enabled single user mode is always disabled.](#)

5. DisableVariableWrite

Type: plist boolean

Failsafe: false

Description: Protect from macOS NVRAM write access.

This is a security option that restricts NVRAM access in macOS. This quirk requires `OC_FIRMWARE_RUNTIME` protocol implemented in `OpenRuntime.efi`.

Note: This quirk can also be used as an ad hoc workaround for defective UEFI runtime services implementations that are unable to write variables to NVRAM and results in operating system failures.

6. DiscardHibernateMap

Type: plist boolean

Failsafe: false

Description: Reuse original hibernate memory map.

This option forces the XNU kernel to ignore a newly supplied memory map and assume that it did not change after waking from hibernation. This behaviour is required by Windows to work. Windows mandates preserving runtime memory size and location after S4 wake.

Note: This may be used to workaround defective memory map implementations on older, rare legacy hardware. Examples of such hardware are Ivy Bridge laptops with Insyde firmware such as the Acer V3-571G. Do not use this option without a full understanding of the implications.

7. EnableSafeModeSlide

Type: plist boolean

Failsafe: false

Description: Patch bootloader to have KASLR enabled in safe mode.

This option is relevant to users with issues booting to safe mode (e.g. by holding `shift` or with using the `-x` boot argument). By default, safe mode forces 0 slide as if the system was launched with the `slide=0` boot argument.

- This quirk attempts to patch the `boot.efi` file to remove this limitation and to allow using other values (from 1 to 255 inclusive).
- This quirk requires enabling `ProvideCustomSlide`.

Note: The need for this option is dependent on the availability of safe mode. It can be enabled when booting to safe mode fails.

Note 4: This patch is for PMIO support and is therefore not applied if `UseMmio` under section `Misc->Serial->Custom` is false. For MMIO, there are boot arguments `pcie_mmio_uart=ADDRESS` and `mmio_uart=ADDRESS` that allow the kernel to use MMIO for serial port access.

Note 5: The serial baud rate must be correctly set in both `BaudRate` under section `Misc->Serial->Custom` and via `serialbaud=VALUE` boot argument, both of which should match against each other. The default baud rate is 115200.

6. `CustomSMBIOSGuid`

Type: plist boolean

Failsafe: false

Requirement: 10.4

Description: Performs GUID patching for `UpdateSMBIOSMode Custom` mode. Usually relevant for Dell laptops.

7. `DisableIoMapper`

Type: plist boolean

Failsafe: false

Requirement: 10.8 (not required for older)

Description: Disables `IoMapper` support in XNU (VT-d), which may conflict with the firmware implementation.

Note 1: This option is a preferred alternative to deleting `DMAR` ACPI table and disabling VT-d in firmware preferences, which does not obstruct VT-d support in other systems in case they need this.

Note 2: Misconfigured IOMMU in the firmware may result in broken devices such as ethernet or Wi-Fi adapters. For instance, an ethernet adapter may cycle in link-up link-down state infinitely and a Wi-Fi adapter may fail to discover networks. Gigabyte is one of the most common OEMs with these issues.

8. [`DisableIoMapperMapping`](#)

Type: plist boolean

Failsafe: false

Requirement: 13.3 (not required for older)

Description: Disables mapping PCI bridge device memory in IOMMU (VT-d).

Note 1: This option resolves compatibility issues with Wi-Fi, Ethernet and Thunderbolt devices when `AppleVTD` is enabled on systems where the native `DMAR` table contains one or more `Reserved Memory Regions`.

Note 2: This option is not needed on AMD systems or any Intel system where the native `DMAR` table does not contain any `Reserved Memory Regions`.

9. `DisableLinkeditJettison`

Type: plist boolean

Failsafe: false

Requirement: 11

Description: Disables `__LINKEDIT` jettison code.

This option lets `Lilu.kext`, and possibly other `kexts`, function in macOS Big Sur at their best performance levels without requiring the `keepsyms=1` boot argument.

10. `DisableRtcChecksum`

Type: plist boolean

Failsafe: false

Requirement: 10.4

Description: Disables primary checksum (0x58-0x59) writing in `AppleRTC`.

Note 1: This option will not protect other areas from being overwritten, see `RTCMemoryFixup` kernel extension if this is desired.

Note 2: This option will not protect areas from being overwritten at firmware stage (e.g. macOS bootloader), see `AppleRtcRam` protocol description if this is desired.

11. `ExtendBTFeatureFlags`

Type: plist boolean

Failsafe: false