Laptop Skylake

Support	Version
Initial macOS Support	OS X 10.11, El Capitan
Note	Skylake's iGPU is only officially supported up to macOS 12

Starting Point

So making a config.plist may seem hard, it's not. It just takes some time but this guide will tell you how to configure everything, you won't be left in the cold. This also means if you have issues, review your config settings to make sure they're correct. Main things to note with OpenCore:

- **All properties must be defined**, there are no default OpenCore will fall back on so **do not delete sections unless told explicitly so**. If the guide doesn't mention the option, leave it at default.
- **The Sample.plist cannot be used As-Is**, you must configure it to your system
- **DO NOT USE CONFIGURATORS**, these rarely respect OpenCore's configuration and even some like Mackie's will add Clover properties and corrupt plists!

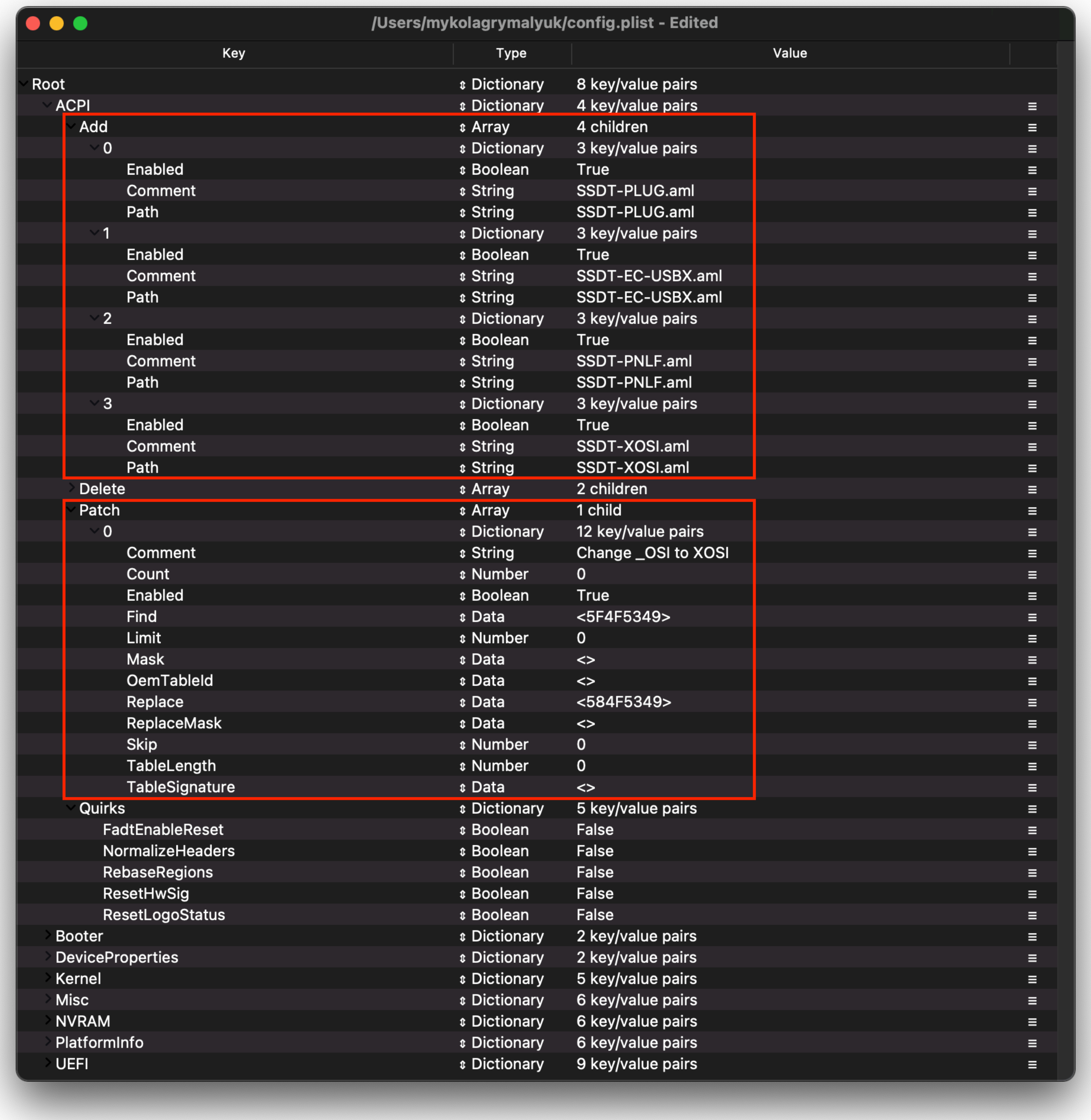
Now with all that, a quick reminder of the tools we need

- ProperTree
  - Universal plist editor
- GenSMBIOS
  - For generating our SMBIOS data
- Sample/config.plist
  - See previous section on how to obtain: config.plist Setup

WARNING

Read this guide more than once before setting up OpenCore and make sure you have it set up correctly. Do note that images will not always be the most up-to-date so please read the text below them, if nothing's mentioned then leave as default.

ACPI



```
/Users/mykolagrymalyuk/config.plist - Edited

Key                                  Type          Value
Root                                 Dictionary    8 key/value pairs
  ACPI                               Dictionary    4 key/value pairs
    Add                              Array         4 children
      0                              Dictionary    3 key/value pairs
          Enabled                    Boolean       True
          Comment                    String        SSDT-PLUG.aml
          Path                       String        SSDT-PLUG.aml
      1                              Dictionary    3 key/value pairs
          Enabled                    Boolean       True
          Comment                    String        SSDT-EC-USBX.aml
          Path                       String        SSDT-EC-USBX.aml
      2                              Dictionary    3 key/value pairs
          Enabled                    Boolean       True
          Comment                    String        SSDT-PNLF.aml
          Path                       String        SSDT-PNLF.aml
      3                              Dictionary    3 key/value pairs
          Enabled                    Boolean       True
          Comment                    String        SSDT-XOSI.aml
          Path                       String        SSDT-XOSI.aml
    Delete                           Array         2 children
    Patch                            Array         1 child
      0                              Dictionary    12 key/value pairs
          Comment                    String        Change _OSI to XOSI
          Count                      Number        0
          Enabled                    Boolean       True
          Find                       Data          <5F4F5349>
          Limit                      Number        0
          Mask                       Data          <>
          OemTableId                 Data          <>
          Replace                    Data          <584F5349>
          ReplaceMask                Data          <>
          Skip                       Number        0
          TableLength                Number        0
          TableSignature             Data          <>
    Quirks                           Dictionary    5 key/value pairs
        FadtEnableReset              Boolean       False
        NormalizeHeaders             Boolean       False
        RebaseRegions                Boolean       False
        ResetHwSig                   Boolean       False
        ResetLogoStatus              Boolean       False
  Booter                             Dictionary    2 key/value pairs
  DeviceProperties                   Dictionary    2 key/value pairs
  Kernel                             Dictionary    5 key/value pairs
  Misc                               Dictionary    6 key/value pairs
  NVRAM                              Dictionary    6 key/value pairs
  PlatformInfo                       Dictionary    6 key/value pairs
  UEFI                               Dictionary    9 key/value pairs
```

Add

Info

This is where you'll add SSDTs for your system, these are very important to **booting macOS** and have many uses like USB maps , disabling unsupported GPUs and such. And with our system, **it's even required to boot**. Guide on making them found here: Getting started with ACPI

others

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Required SSDTs	Description
SSDT-PLUG	Allows for native CPU power management on Haswell and newer, see Getting Started With ACPI Guide for more details.
SSDT-EC-USBX	Fixes both the embedded controller and USB power, see Getting Started With ACPI Guide for more details.
SSDT-GPIO	Creates a stub so VoodooI2C can connect, for those having troubles getting VoodooI2C working can try SSDT-XOSI instead. Note that Intel NUCs do not need this
SSDT-PNLF	Fixes brightness control, see Getting Started With ACPI Guide for more details. Note that Intel NUCs do not need this

Note that you **should not** add your generated `DSDT.aml` here, it is already in your firmware. So if present, remove the entry for it in your `config.plist` and under EFI/OC/ACPI.

For those wanting a deeper dive into dumping your DSDT, how to make these SSDTs, and compiling them, please see the Getting started with ACPI **page.** Compiled SSDTs have a **.aml** extension(Assembled) and will go into the `EFI/OC/ACPI` folder and **must** be specified in your config under `ACPI -> Add` as well.

Delete

This blocks certain ACPI tables from loading, for us we can ignore this.

Patch

Info

This section allows us to dynamically modify parts of the ACPI (DSDT, SSDT, etc.) via OpenCore. For us, we'll need the following:

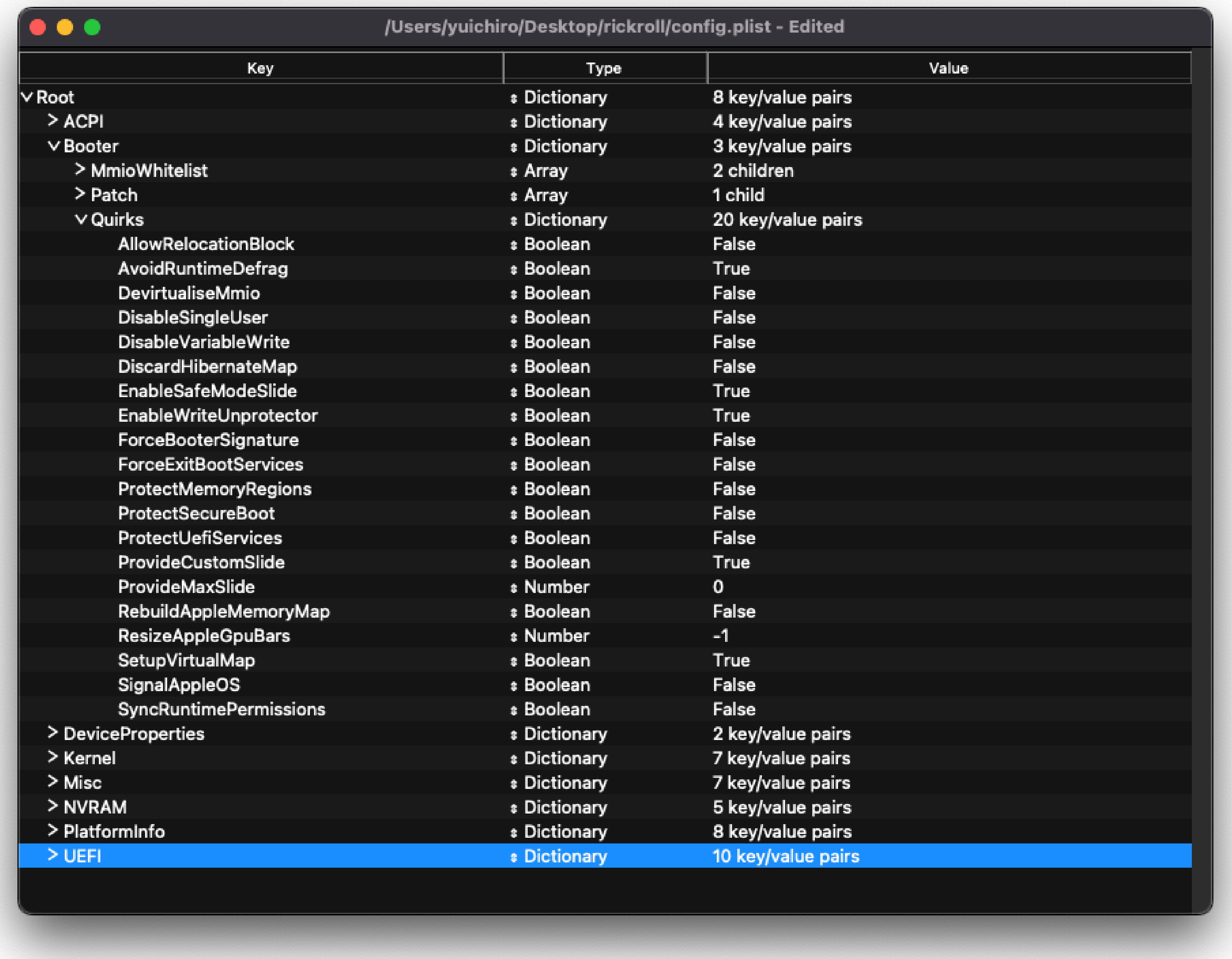
- OSI rename
  - This is required when using SSDT-XOSI as we redirect all OSI calls to this SSDT, **this is not needed if you're using SSDT-GPIO**

Comment	String	Change _OSI to XOSI
Enabled	Boolean	YES
Count	Number	0
Limit	Number	0
Find	Data	`5f4f5349`
Replace	Data	`584f5349`

Quirks

Settings relating to ACPI, leave everything here as default as we have no use for these quirks.

Booter



/Users/yuichiro/Desktop/rickroll/config.plist - Edited

Key	Type	Value
Root	Dictionary	8 key/value pairs
ACPI	Dictionary	4 key/value pairs
Booter	Dictionary	3 key/value pairs
MmioWhitelist	Array	2 children
Patch	Array	1 child
Quirks	Dictionary	20 key/value pairs
AllowRelocationBlock	Boolean	False
AvoidRuntimeDefrag	Boolean	True
DevirtualiseMmio	Boolean	False
DisableSingleUser	Boolean	False
DisableVariableWrite	Boolean	False
DiscardHibernateMap	Boolean	False
EnableSafeModeSlide	Boolean	True
EnableWriteUnprotector	Boolean	True
ForceBooterSignature	Boolean	False
ForceExitBootServices	Boolean	False
ProtectMemoryRegions	Boolean	False
ProtectSecureBoot	Boolean	False
ProtectUefiServices	Boolean	False
ProvideCustomSlide	Boolean	True
ProvideMaxSlide	Number	0
RebuildAppleMemoryMap	Boolean	False
ResizeAppleGpuBars	Number	-1
SetupVirtualMap	Boolean	True
SignalAppleOS	Boolean	False
SyncRuntimePermissions	Boolean	False
DeviceProperties	Dictionary	2 key/value pairs
Kernel	Dictionary	7 key/value pairs
Misc	Dictionary	7 key/value pairs
NVRAM	Dictionary	5 key/value pairs
PlatformInfo	Dictionary	8 key/value pairs
UEFI	Dictionary	10 key/value pairs

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MmioWhitelist

This section is allowing spaces to be pass-through to macOS that are generally ignored, useful when paired with `DevirtualiseMmio`

Quirks

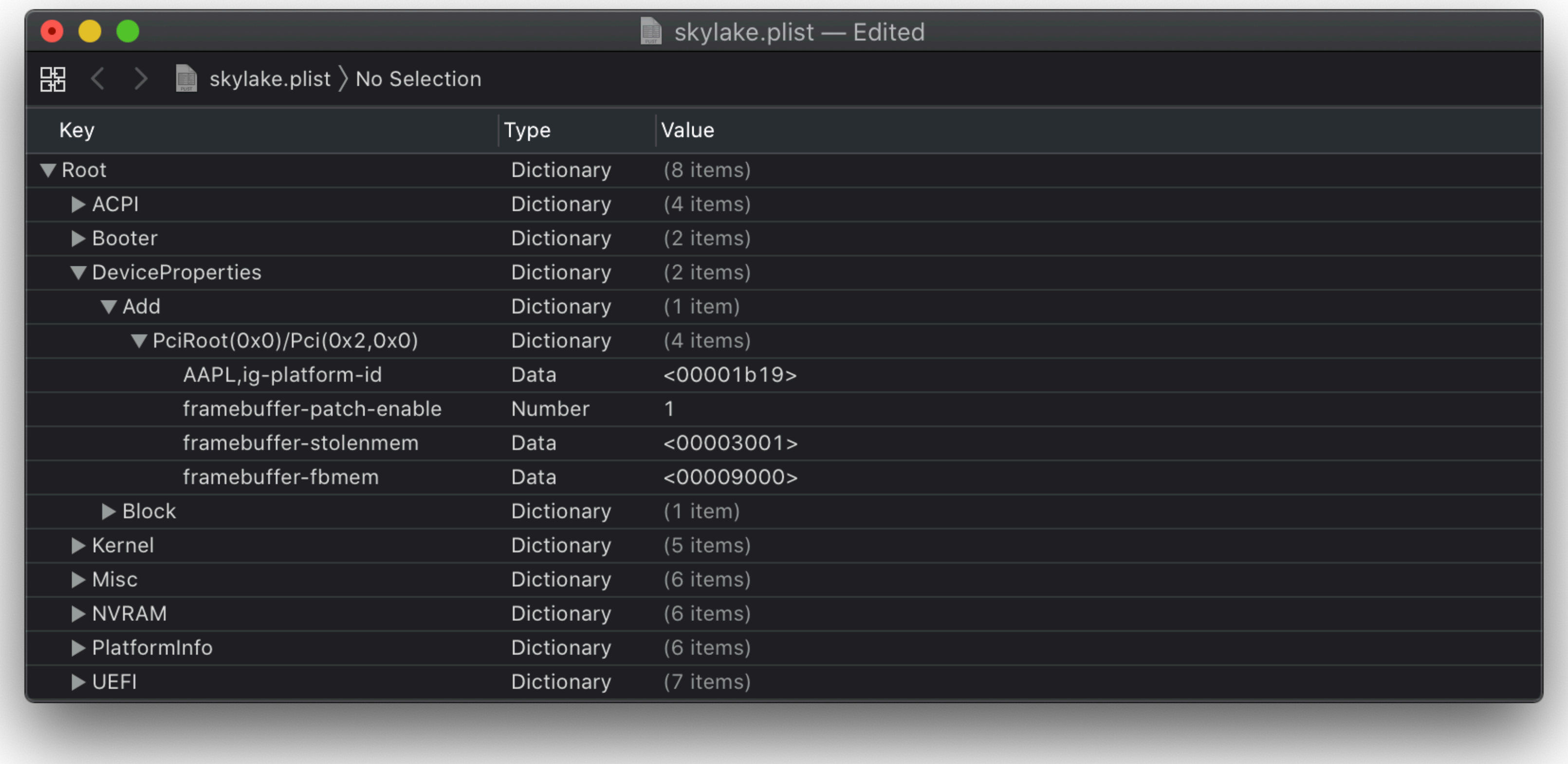
Info

Settings relating to boot.efi patching and firmware fixes. For most users, leave it as default.

- **ProtectMemoryRegions**: YES
  - Fixes shutdown/restart on some Chromebooks that would otherwise result in a `AppleEFINVRAM` kernel panic.

▶ More in-depth Info

DeviceProperties


skylake.plist — Edited

skylake.plist 〉 No Selection

Key	Type	Value
▼ Root	Dictionary	(8 items)
▶ ACPI	Dictionary	(4 items)
▶ Booter	Dictionary	(2 items)
▼ DeviceProperties	Dictionary	(2 items)
▼ Add	Dictionary	(1 item)
▼ PciRoot(0x0)/Pci(0x2,0x0)	Dictionary	(4 items)
AAPL,ig-platform-id	Data	<00001b19>
framebuffer-patch-enable	Number	1
framebuffer-stolenmem	Data	<00003001>
framebuffer-fbmem	Data	<00009000>
▶ Block	Dictionary	(1 item)
▶ Kernel	Dictionary	(5 items)
▶ Misc	Dictionary	(6 items)
▶ NVRAM	Dictionary	(6 items)
▶ PlatformInfo	Dictionary	(6 items)
▶ UEFI	Dictionary	(7 items)

Add

Sets device properties from a map.

PciRoot(0x0)/Pci(0x2,0x0)

This section is set up via WhateverGreen's Framebuffer Patching Guide and is used for setting important iGPU properties.

The config.plist doesn't already have a section for this so you will have to create it manually.

When setting up your iGPU, the table below should help with finding the right values to set. Here is an explanation of some values:

- **AAPL,ig-platform-id**
  - This is used internally for setting up the iGPU
- **Type**
  - Whether the entry is recommended for laptops(ie. with built-in displays) or for Intel NUCs(ie. stand alone boxes)

Generally follow these steps when setting up your iGPU properties. Follow the configuration notes below the table if they say anything different:

1. When initially setting up your config.plist, only set AAPL,ig-platform-id - this is normally enough
2. If you boot and you get no graphics acceleration (7MB VRAM and solid background for dock), then you likely need to try different `AAPL,ig-platform-id` values, add stolenmem patches, or even add a `device-id` property.

AAPL,ig-platform-id	Type	Comment
`00001619`	Laptop	Recommended value for HD 515, HD 520, HD 530, HD 540, HD 550 and P530
`00001E19`	Laptop	Alternative for HD 515 if you have issues with the above entry
`00001B19`	Laptop	Recommended value for HD 510
`00001E19`	NUC	Recommended for HD 515
`02001619`	NUC	Recommended for HD 520/530
`02002619`	NUC	Recommended for HD 540/550
`05003B19`	NUC	Recommended for HD 580

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Configuration Notes

- For HD 510 you will need to use a device-id spoof:

Key	Type	Value
device-id	Data	`02190000`

- For HD 550 and P530 (and potentially all HD P-series iGPUs), you may need to use `device-id = 16190000`:

Key	Type	Value
device-id	Data	`16190000`

- In some cases where you cannot set the DVMT-prealloc of these cards to 64MB higher in your UEFI Setup, you may get a kernel panic. Usually they're configured for 32MB of DVMT-prealloc, in that case these values are added to your iGPU Properties

Key	Type	Value
framebuffer-patch-enable	Data	`01000000`
framebuffer-stolenmem	Data	`00003001`
framebuffer-fbmem	Data	`00009000`

PciRoot(0x0)/Pci(0x1b,0x0)

`layout-id`

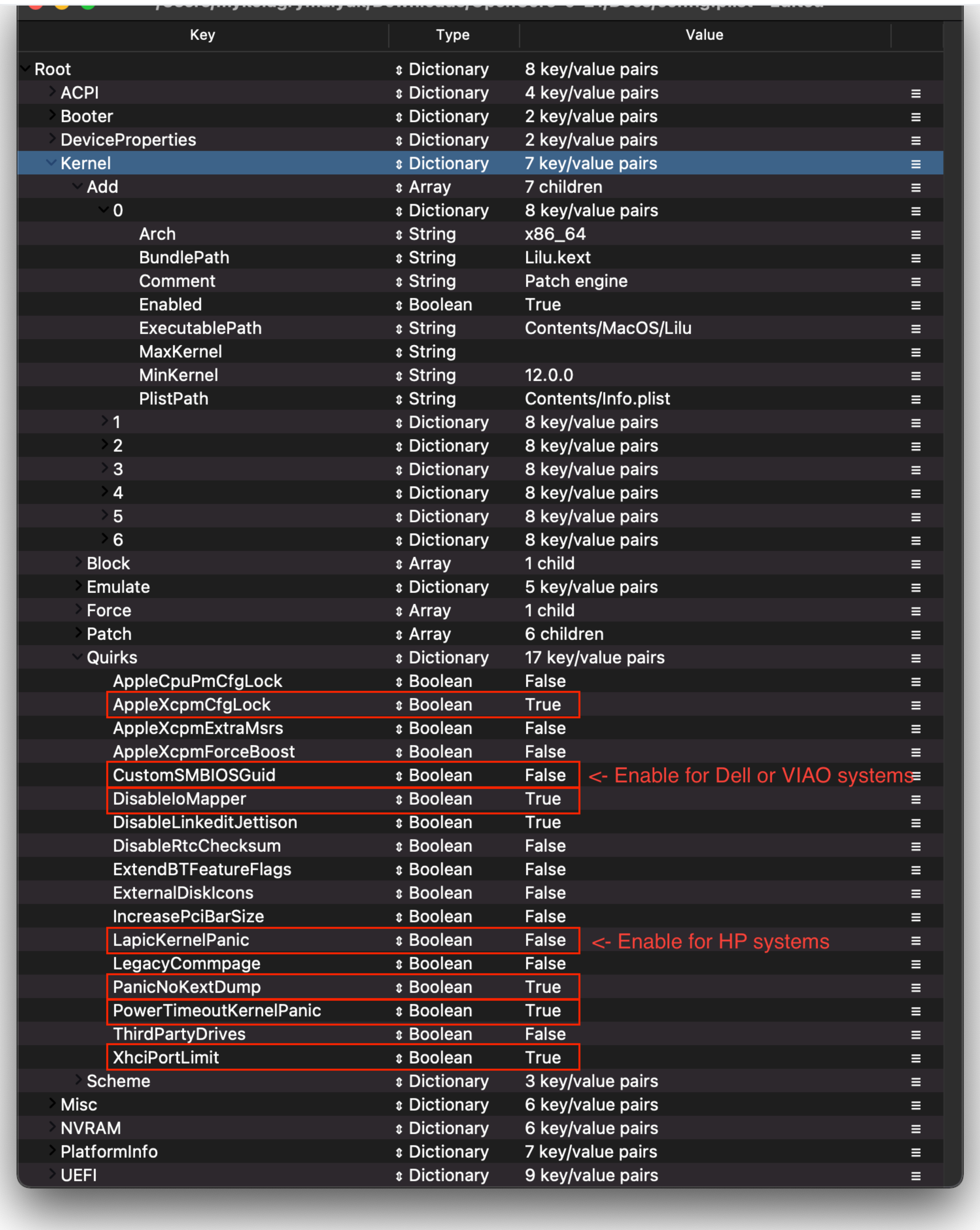
- Applies AppleALC audio injection, you'll need to do your own research on which codec your motherboard has and match it with AppleALC's layout. AppleALC Supported Codecs .
- You can delete this property outright as it's unused for us at this time

For us, we'll be using the boot argument `alcid=xxx` instead to accomplish this. `alcid` will override all other layout-IDs present. More info on this is covered in the Post-Install Page

Delete

Removes device properties from the map, for us we can ignore this

Kernel



Key	Type	Value
Root	Dictionary	8 key/value pairs
ACPI	Dictionary	4 key/value pairs
Booter	Dictionary	2 key/value pairs
DeviceProperties	Dictionary	2 key/value pairs
Kernel	Dictionary	7 key/value pairs
Add	Array	7 children
0	Dictionary	8 key/value pairs
Arch	String	x86_64
BundlePath	String	Lilu.kext
Comment	String	Patch engine
Enabled	Boolean	True
ExecutablePath	String	Contents/MacOS/Lilu
MaxKernel	String	
MinKernel	String	12.0.0
PlistPath	String	Contents/Info.plist
1	Dictionary	8 key/value pairs
2	Dictionary	8 key/value pairs
3	Dictionary	8 key/value pairs
4	Dictionary	8 key/value pairs
5	Dictionary	8 key/value pairs
6	Dictionary	8 key/value pairs
Block	Array	1 child
Emulate	Dictionary	5 key/value pairs
Force	Array	1 child
Patch	Array	6 children
Quirks	Dictionary	17 key/value pairs
AppleCpuPmCfgLock	Boolean	False
AppleXcpmCfgLock	Boolean	True
AppleXcpmExtraMsrs	Boolean	False
AppleXcpmForceBoost	Boolean	False
CustomSMBIOSGuid	Boolean	False
DisableIoMapper	Boolean	True
DisableLinkeditJettison	Boolean	True
DisableRtcChecksum	Boolean	False
ExtendBTFeatureFlags	Boolean	False
ExternalDiskIcons	Boolean	False
IncreasePciBarSize	Boolean	False
LapicKernelPanic	Boolean	False
LegacyCommpage	Boolean	False
PanicNoKextDump	Boolean	True
PowerTimeoutKernelPanic	Boolean	True
ThirdPartyDrives	Boolean	False
XhciPortLimit	Boolean	True
Scheme	Dictionary	3 key/value pairs
Misc	Dictionary	6 key/value pairs
NVRAM	Dictionary	6 key/value pairs
PlatformInfo	Dictionary	7 key/value pairs
UEFI	Dictionary	9 key/value pairs

<- Enable for Dell or VIAO systems

<- Enable for HP systems

Add

Here's where we specify which kexts to load, in what specific order to load, and what architectures each kext is meant for. By default we recommend leaving what ProperTree has done, however for 32-bit CPUs please see below:

▶ More in-depth Info

Emulate

Needed for spoofing unsupported CPUs like Pentiums and Celerons

- **Cpuid1Mask**: Leave this blank
- **Cpuid1Data**: Leave this blank

Force

Used for loading kexts off system volume, only relevant for older operating systems where certain kexts are not present in the cache(ie. IONetworkingFamily in 10.6).

For us, we can ignore.

Block

Blocks certain kexts from loading. Not relevant for us.

Patch

Patches both the kernel and kexts.

Quirks

Info

Settings relating to the kernel, for us we'll be enabling the following:

Quirk	Enabled	Comment
AppleXcpmCfgLock	YES	Not needed if `CFG-Lock` is disabled in the BIOS
DisableIoMapper	YES	Not needed if `VT-D` is disabled in the BIOS

LapicKernelPanic	NO	HP Machines will require this quirk
PanicNoKextDump	YES	
PowerTimeoutKernelPanic	YES	
XhciPortLimit	YES	Disable if running macOS 11.3+

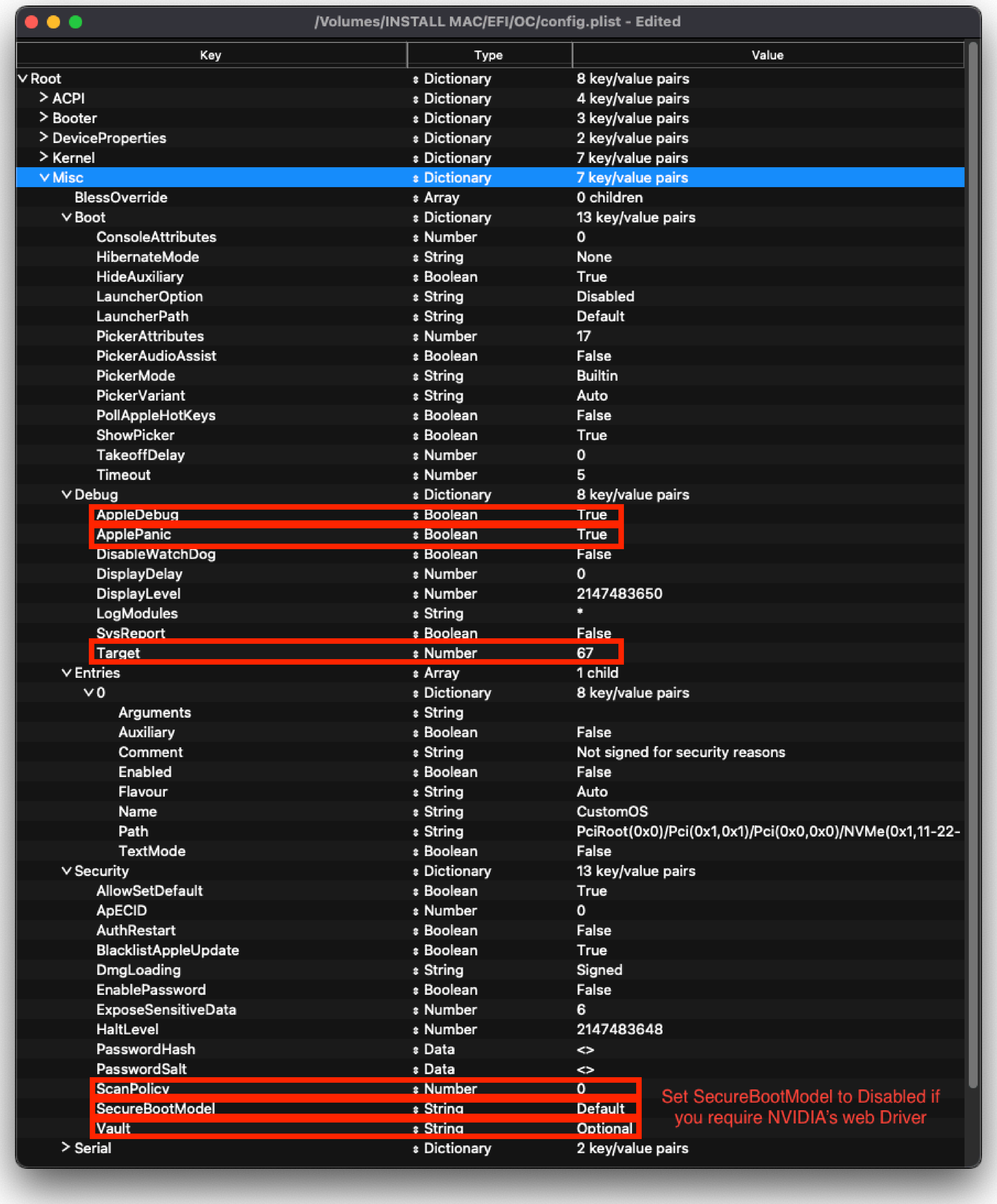
▶ More in-depth Info

Scheme

Settings related to legacy booting(ie. 10.4-10.6), for majority you can skip however for those planning to boot legacy OSes you can see below:

▶ More in-depth Info

Misc



```
/Volumes/INSTALL MAC/EFI/OC/config.plist - Edited

Key                              Type           Value
v Root                           ‡ Dictionary   8 key/value pairs
  > ACPI                         ‡ Dictionary   4 key/value pairs
  > Booter                       ‡ Dictionary   3 key/value pairs
  > DeviceProperties             ‡ Dictionary   2 key/value pairs
  > Kernel                       ‡ Dictionary   7 key/value pairs
  v Misc                         ‡ Dictionary   7 key/value pairs
      BlessOverride              ‡ Array        0 children
    v Boot                       ‡ Dictionary   13 key/value pairs
        ConsoleAttributes        ‡ Number       0
        HibernateMode            ‡ String       None
        HideAuxiliary            ‡ Boolean      True
        LauncherOption           ‡ String       Disabled
        LauncherPath             ‡ String       Default
        PickerAttributes         ‡ Number       17
        PickerAudioAssist        ‡ Boolean      False
        PickerMode               ‡ String       Builtin
        PickerVariant            ‡ String       Auto
        PollAppleHotKeys         ‡ Boolean      False
        ShowPicker               ‡ Boolean      True
        TakeoffDelay             ‡ Number       0
        Timeout                  ‡ Number       5
    v Debug                      ‡ Dictionary   8 key/value pairs
        AppleDebug               ‡ Boolean      True
        ApplePanic               ‡ Boolean      True
        DisableWatchDog          ‡ Boolean      False
        DisplayDelay             ‡ Number       0
        DisplayLevel             ‡ Number       2147483650
        LogModules               ‡ String       *
        SysReport                ‡ Boolean      False
        Target                   ‡ Number       67
    v Entries                    ‡ Array        1 child
      v 0                        ‡ Dictionary   8 key/value pairs
          Arguments              ‡ String
          Auxiliary              ‡ Boolean      False
          Comment                ‡ String       Not signed for security reasons
          Enabled                ‡ Boolean      False
          Flavour                ‡ String       Auto
          Name                   ‡ String       CustomOS
          Path                   ‡ String       PciRoot(0x0)/Pci(0x1,0x1)/Pci(0x0,0x0)/NVMe(0x1,11-22-
          TextMode               ‡ Boolean      False
    v Security                   ‡ Dictionary   13 key/value pairs
        AllowSetDefault          ‡ Boolean      True
        ApECID                   ‡ Number       0
        AuthRestart              ‡ Boolean      False
        BlacklistAppleUpdate     ‡ Boolean      True
        DmgLoading               ‡ String       Signed
        EnablePassword           ‡ Boolean      False
        ExposeSensitiveData      ‡ Number       6
        HaltLevel                ‡ Number       2147483648
        PasswordHash             ‡ Data         <>
        PasswordSalt             ‡ Data         <>
        ScanPolicy               ‡ Number       0
        SecureBootModel          ‡ String       Default
        Vault                    ‡ String       Optional
    > Serial                     ‡ Dictionary   2 key/value pairs
```

Set SecureBootModel to Disabled if you require NVIDIA's web Driver

Boot

Info

Quirk	Enabled	Comment
HideAuxiliary	YES	Press space to show macOS recovery and other auxiliary entries

▶ More in-depth Info

Debug

Info

Helpful for debugging OpenCore boot issues(We'll be changing everything *but* `DisplayDelay`):

AppleDebug	YES
ApplePanic	YES
DisableWatchDog	YES
Target	67

▶ More in-depth Info

Security

Info

Security is pretty self-explanatory, **do not skip**. We'll be changing the following:

Quirk	Enabled	Comment
AllowSetDefault	YES	
BlacklistAppleUpdate	YES	
ScanPolicy	0	
SecureBootModel	Default	Leave this as `Default` for OpenCore to automatically set the correct value corresponding to your SMBIOS. The next page goes into more detail about this setting.
Vault	Optional	This is a word, it is not optional to omit this setting. You will regret it if you don't set it to Optional, note that it is case-sensitive

▶ More in-depth Info

Serial

Used for serial debugging (Leave everything as default).

Tools

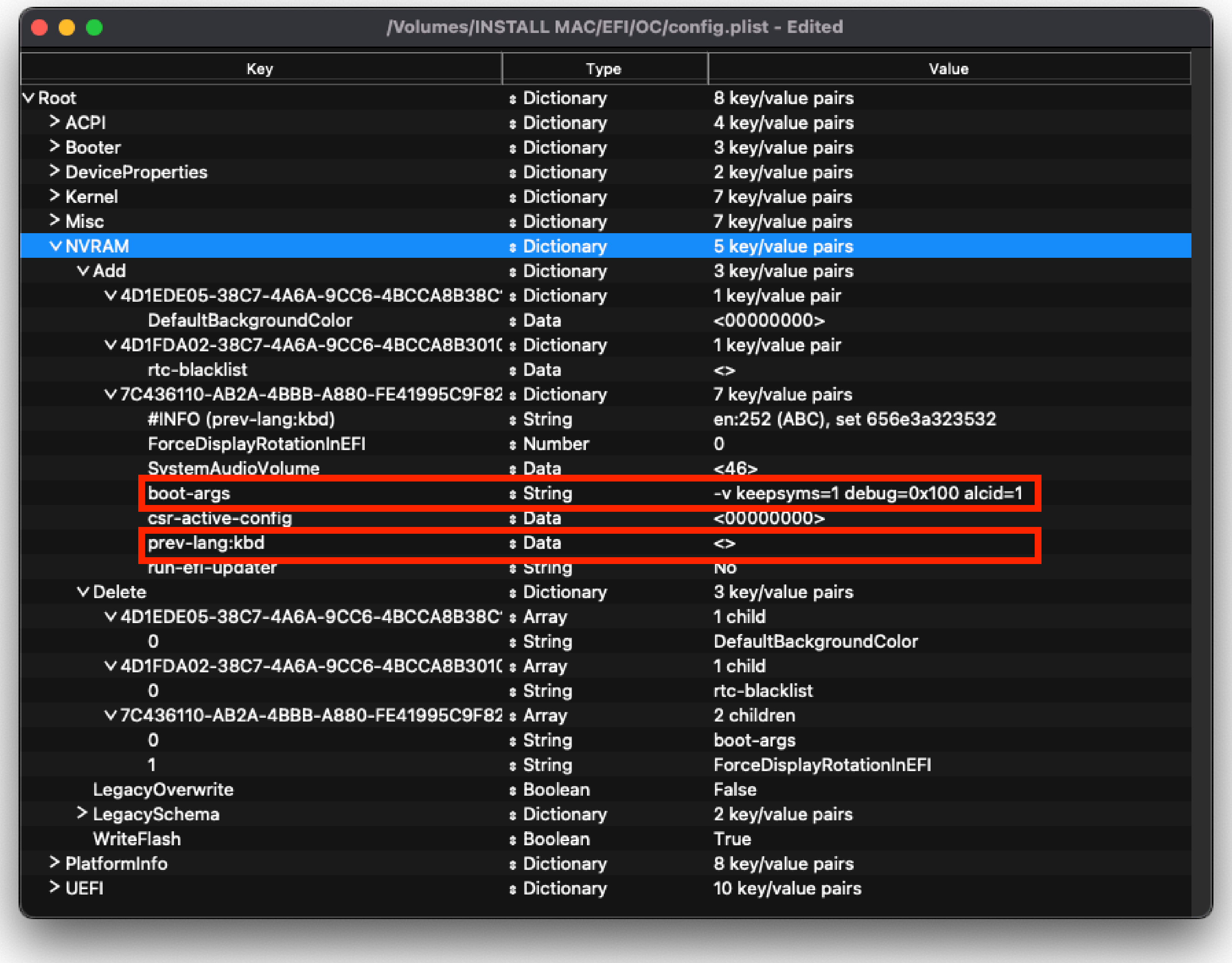
Used for running OC debugging tools like the shell, ProperTree's snapshot function will add these for you.

Entries

Used for specifying irregular boot paths that can't be found naturally with OpenCore.

Won't be covered here, see 8.6 of Configuration.pdf for more info

NVRAM



/Volumes/INSTALL MAC/EFI/OC/config.plist - Edited

Key	Type	Value
∨ Root	Dictionary	8 key/value pairs
> ACPI	Dictionary	4 key/value pairs
> Booter	Dictionary	3 key/value pairs
> DeviceProperties	Dictionary	2 key/value pairs
> Kernel	Dictionary	7 key/value pairs
> Misc	Dictionary	7 key/value pairs
∨ NVRAM	Dictionary	5 key/value pairs
∨ Add	Dictionary	3 key/value pairs
∨ 4D1EDE05-38C7-4A6A-9CC6-4BCCA8B38C	Dictionary	1 key/value pair
DefaultBackgroundColor	Data	<00000000>
∨ 4D1FDA02-38C7-4A6A-9CC6-4BCCA8B301(	Dictionary	1 key/value pair
rtc-blacklist	Data	<>
∨ 7C436110-AB2A-4BBB-A880-FE41995C9F82	Dictionary	7 key/value pairs
#INFO (prev-lang:kbd)	String	en:252 (ABC), set 656e3a323532
ForceDisplayRotationInEFI	Number	0
SystemAudioVolume	Data	<46>
boot-args	String	-v keepsyms=1 debug=0x100 alcid=1
csr-active-config	Data	<00000000>
prev-lang:kbd	Data	<>
run-efi-updater	String	No
∨ Delete	Dictionary	3 key/value pairs
∨ 4D1EDE05-38C7-4A6A-9CC6-4BCCA8B38C	Array	1 child
0	String	DefaultBackgroundColor
∨ 4D1FDA02-38C7-4A6A-9CC6-4BCCA8B301(	Array	1 child
0	String	rtc-blacklist
∨ 7C436110-AB2A-4BBB-A880-FE41995C9F82	Array	2 children
0	String	boot-args
1	String	ForceDisplayRotationInEFI
LegacyOverwrite	Boolean	False
> LegacySchema	Dictionary	2 key/value pairs
WriteFlash	Boolean	True
> PlatformInfo	Dictionary	8 key/value pairs
> UEFI	Dictionary	10 key/value pairs

Add

Used for OpenCore's UI scaling, default will work for us. See in-depth section for more info

▶ More in-depth Info

4D1FDA02-38C7-4A6A-9CC6-4BCCA8B30102

OpenCore's NVRAM GUID, mainly relevant for RTCMemoryFixup users

▶ More in-depth Info

7C436110-AB2A-4BBB-A880-FE41995C9F82

System Integrity Protection bitmask

- **General Purpose boot-args**:

boot-args	Description
-v	This enables verbose mode, which shows all the behind-the-scenes text that scrolls by as you're booting instead of the Apple logo and progress bar. It's invaluable to any Hackintosher, as it gives you an inside look at the boot process, and can help you identify issues, problem kexts, etc.
debug=0x100	This disables macOS's watchdog which helps prevents a reboot on a kernel panic. That way you can *hopefully* glean some useful info and follow the breadcrumbs to get past the issues.
keepsyms=1	This is a companion setting to debug=0x100 that tells the OS to also print the symbols on a kernel panic. That can give some more helpful insight as to what's causing the panic itself.
alcid=1	Used for setting layout-id for AppleALC, see supported codecs to figure out which layout to use for your specific system. More info on this is covered in the Post-Install Page

- **GPU-Specific boot-args**:

boot-args	Description
-wegnoegpu	Used for disabling all other GPUs than the integrated Intel iGPU, useful for those wanting to run newer versions of macOS where their dGPU isn't supported
-igfxnotelemetryload	Prevents iGPU telemetry from loading. iGPU telemetry may cause a freeze during startup on certain laptops such as Chromebooks on macOS 10.15 and higher, see here for more information.

- **csr-active-config**: `00000000`
  - Settings for 'System Integrity Protection' (SIP). It is generally recommended to change this with `csrutil` via the recovery partition.
  - csr-active-config by default is set to `00000000` which enables System Integrity Protection. You can choose a number of different values but overall we recommend keeping this enabled for best security practices. More info can be found in our troubleshooting page: Disabling SIP
- **run-efi-updater**: `No`
  - This is used to prevent Apple's firmware update packages from installing and breaking boot order; this is important as these firmware updates (meant for Macs) will not work.
- **prev-lang:kbd**: <>
  - Needed for non-latin keyboards in the format of `lang-COUNTRY:keyboard` , recommended to keep blank though you can specify it(**Default in Sample config is Russian**):
  - American: `en-US:0` (`656e2d55533a30` in HEX)
  - Full list can be found in AppleKeyboardLayouts.txt
  - Hint: `prev-lang:kbd` can be changed into a String so you can input `en-US:0` directly instead of converting to HEX
  - Hint 2: `prev-lang:kbd` can be set to a blank variable (eg. `<>`) which will force the Language Picker to appear instead at first boot up.

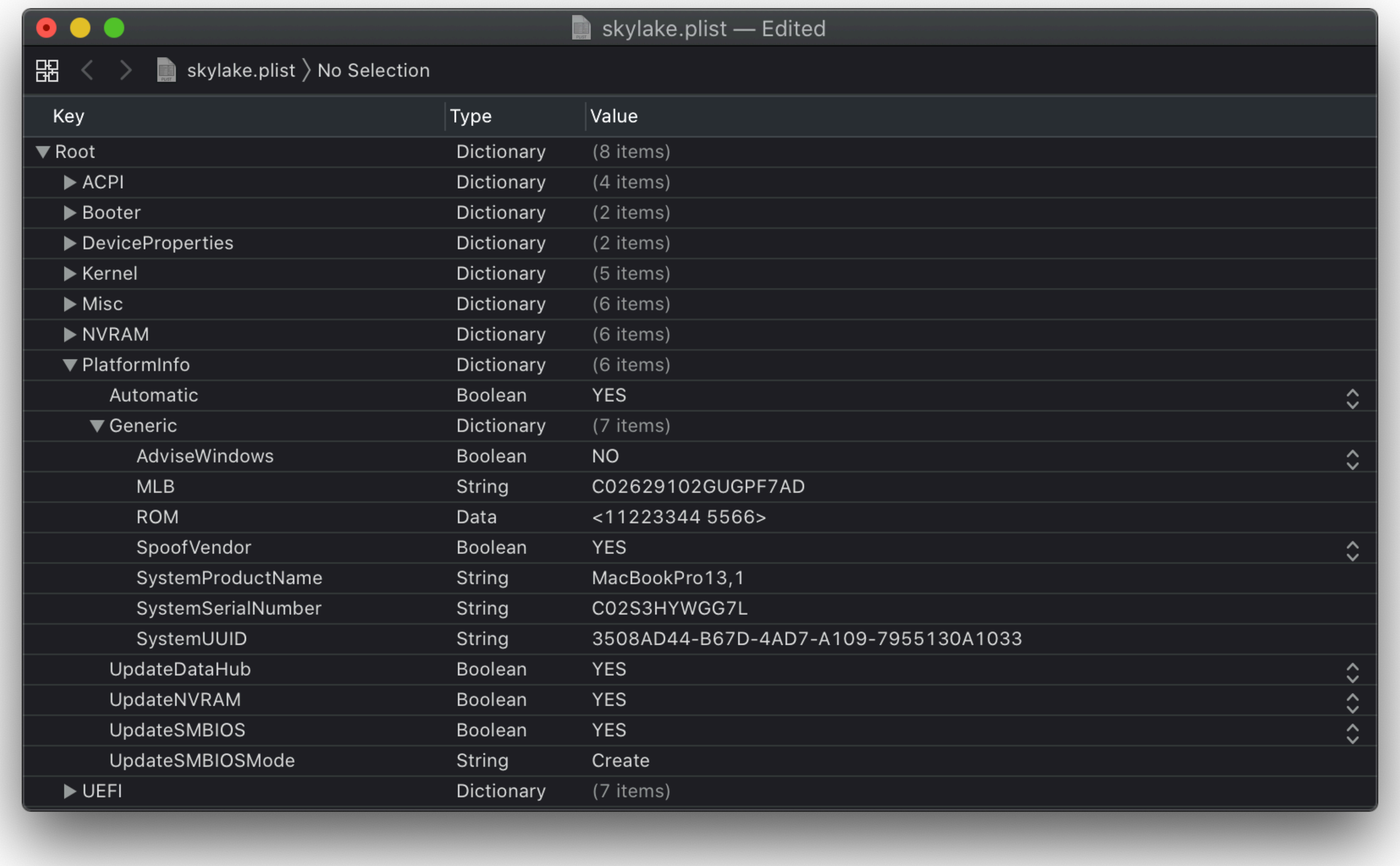
Key	Type	Value
prev-lang:kbd	String	en-US:0

Delete

Forcibly rewrites NVRAM variables, do note that `Add` **will not overwrite** values already present in NVRAM so values like `boot-args` should be left alone.

- **LegacySchema**
  - Used for assigning NVRAM variables, used with `OpenVariableRuntimeDxe.efi` . Only needed for systems without native NVRAM
- **WriteFlash**: YES

PlatformInfo



Key	Type	Value
▼ Root	Dictionary	(8 items)
▶ ACPI	Dictionary	(4 items)
▶ Booter	Dictionary	(2 items)
▶ DeviceProperties	Dictionary	(2 items)
▶ Kernel	Dictionary	(5 items)
▶ Misc	Dictionary	(6 items)
▶ NVRAM	Dictionary	(6 items)
▼ PlatformInfo	Dictionary	(6 items)
Automatic	Boolean	YES
▼ Generic	Dictionary	(7 items)
AdviseWindows	Boolean	NO
MLB	String	C02629102GUGPF7AD
ROM	Data	<11223344 5566>
SpoofVendor	Boolean	YES
SystemProductName	String	MacBookPro13,1
SystemSerialNumber	String	C02S3HYWGG7L
SystemUUID	String	3508AD44-B67D-4AD7-A109-7955130A1033
UpdateDataHub	Boolean	YES
UpdateNVRAM	Boolean	YES
UpdateSMBIOS	Boolean	YES
UpdateSMBIOSMode	String	Create
▶ UEFI	Dictionary	(7 items)

Info

For setting up the SMBIOS info, we'll use CorpNewt's GenSMBIOS application.

For this Skylake example, we'll choose the MacBookPro13,1 SMBIOS. The typical breakdown is as follows:

SMBIOS	CPU Type	GPU Type	Display Size	Touch ID
MacBook9,1	Dual Core 7W(Low End)	iGPU: HD 515	12"	No
MacBookPro13,1	Dual Core 15W(Low End)	iGPU: Iris 540	13"	No
MacBookPro13,2	Dual Core 15W(High End)	iGPU: Iris 550	13"	Yes
MacBookPro13,3	Quad Core 45W	iGPU: HD 530 + dGPU: Radeon Pro 450/455	15"	Yes
iMac17,1	NUC Systems	iGPU: HD 530 + R9 290	N/A	No

Note 2: All of these SMBIOSes were dropped in macOS Ventura. If running macOS Ventura, use a Kaby Lake SMBIOS.

Run GenSMBIOS, pick option 1 for downloading MacSerial and Option 3 for selecting out SMBIOS. This will give us an output similar to the following:

```
  #######################################################
 #               MacBookPro13,1 SMBIOS Info            #
#######################################################

Type:         MacBookPro13,1
Serial:       C02S3HYWGG7L
Board Serial: C02629102GUGPF7AD
SmUUID:       3508AD44-B67D-4AD7-A109-7955130A1033
```

The `Type` part gets copied to Generic -> SystemProductName.

The `Serial` part gets copied to Generic -> SystemSerialNumber.

The `Board Serial` part gets copied to Generic -> MLB.

The `SmUUID` part gets copied to Generic -> SystemUUID.

We set Generic -> ROM to either an Apple ROM (dumped from a real Mac), your NIC MAC address, or any random MAC address (could be just 6 random bytes, for this guide we'll use `11223300 0000`. After install follow the Fixing iServices page on how to find your real MAC Address)

Reminder that you need an invalid serial! When inputting your serial number in Apple's Check Coverage Page, you should get a message such as "Unable to check coverage for this serial number."

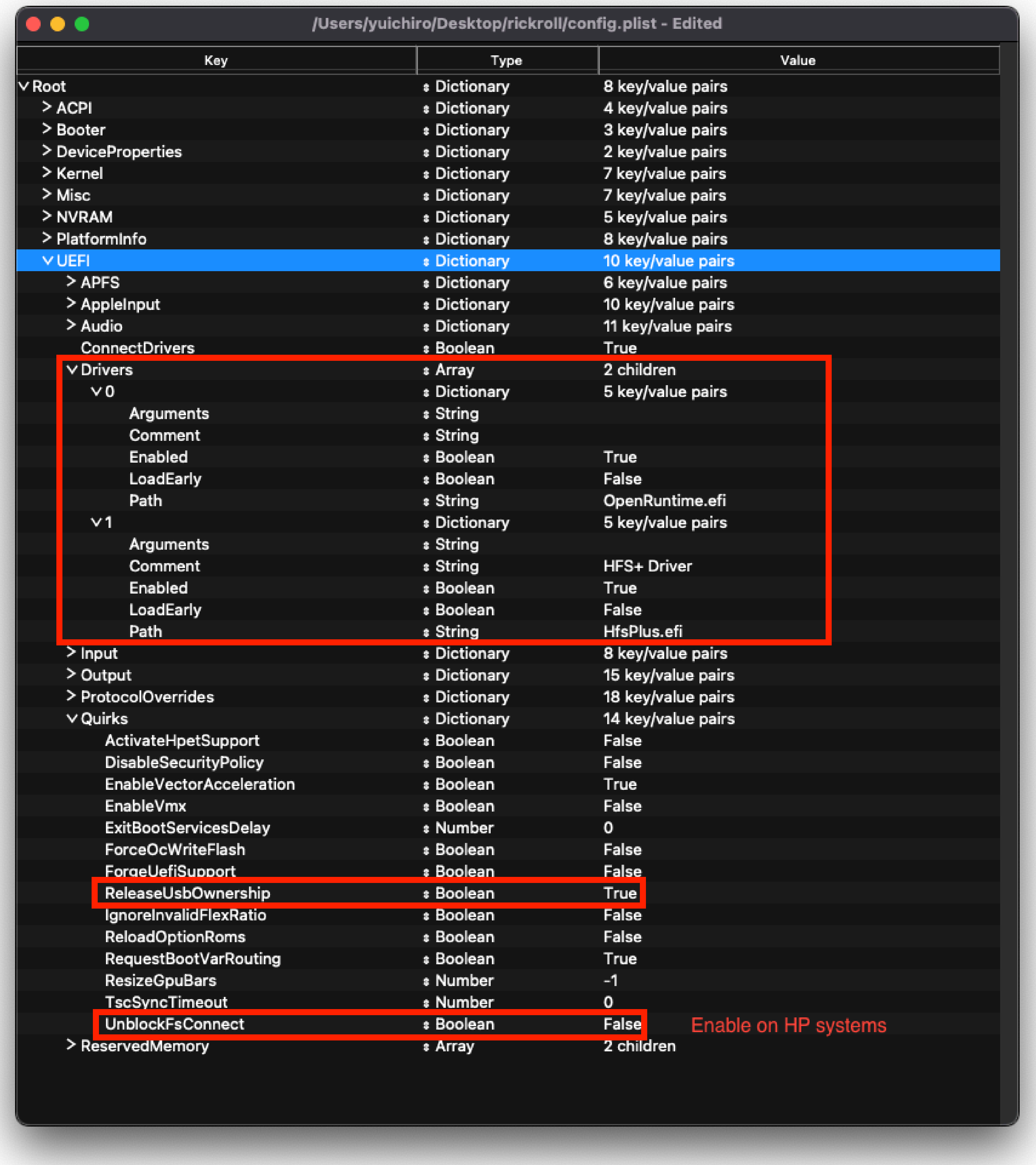
Automatic: YES

- Generates PlatformInfo based on Generic section instead of DataHub, NVRAM, and SMBIOS sections

Generic

▶ More in-depth Info

UEFI



/Users/yuichiro/Desktop/rickroll/config.plist - Edited

Key	Type	Value
Root	Dictionary	8 key/value pairs
ACPI	Dictionary	4 key/value pairs
Booter	Dictionary	3 key/value pairs
DeviceProperties	Dictionary	2 key/value pairs
Kernel	Dictionary	7 key/value pairs
Misc	Dictionary	7 key/value pairs
NVRAM	Dictionary	5 key/value pairs
PlatformInfo	Dictionary	8 key/value pairs
UEFI	Dictionary	10 key/value pairs
APFS	Dictionary	6 key/value pairs
AppleInput	Dictionary	10 key/value pairs
Audio	Dictionary	11 key/value pairs
ConnectDrivers	Boolean	True
Drivers	Array	2 children
0	Dictionary	5 key/value pairs
Arguments	String	
Comment	String	
Enabled	Boolean	True
LoadEarly	Boolean	False
Path	String	OpenRuntime.efi
1	Dictionary	5 key/value pairs
Arguments	String	
Comment	String	HFS+ Driver
Enabled	Boolean	True
LoadEarly	Boolean	False
Path	String	HfsPlus.efi
Input	Dictionary	8 key/value pairs
Output	Dictionary	15 key/value pairs
ProtocolOverrides	Dictionary	18 key/value pairs
Quirks	Dictionary	14 key/value pairs
ActivateHpetSupport	Boolean	False
DisableSecurityPolicy	Boolean	False
EnableVectorAcceleration	Boolean	True
EnableVmx	Boolean	False
ExitBootServicesDelay	Number	0
ForceOcWriteFlash	Boolean	False
ForgeUefiSupport	Boolean	False
ReleaseUsbOwnership	Boolean	True
IgnoreInvalidFlexRatio	Boolean	False
ReloadOptionRoms	Boolean	False
RequestBootVarRouting	Boolean	True
ResizeGpuBars	Number	-1
TscSyncTimeout	Number	0
UnblockFsConnect	Boolean	False
ReservedMemory	Array	2 children

Enable on HP systems

ConnectDrivers: YES

- Forces .efi drivers, change to NO will automatically connect added UEFI drivers. This can make booting slightly faster, but not all drivers connect themselves. E.g. certain file system drivers may not load.

Drivers

Add your .efi drivers here.

Only drivers present here should be:

- HfsPlus.efi
- OpenRuntime.efi

▶ More in-depth Info

APFS

By default, OpenCore only loads APFS drivers from macOS Big Sur and newer. If you are booting macOS Catalina or earlier, you may need to set a new minimum version/date. Not setting this can result in OpenCore not finding your macOS partition!

macOS Sierra and earlier use HFS instead of APFS. You can skip this section if booting older versions of macOS.

APFS Versions

Both MinVersion and MinDate need to be set if changing the minimum version.

macOS Version	Min Version	Min Date
High Sierra (`10.13.6`)	`748077008000000`	`20180621`
Mojave (`10.14.6`)	`945275007000000`	`20190820`
Catalina (`10.15.4`)	`1412101001000000`	`20200306`
No restriction	`-1`	`-1`

Audio

Related to AudioDxe settings, for us we'll be ignoring(leave as default). This is unrelated to audio support in macOS.

Others

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Input

Related to boot.efi keyboard passthrough used for FileVault and Hotkey support, leave everything here as default as we have no use for these quirks. See here for more details: Security and FileVault

Output

Relating to OpenCore's visual output, leave everything here as default as we have no use for these quirks.

▶ More in-depth Info

ProtocolOverrides

Mainly relevant for Virtual machines, legacy macs and FileVault users. See here for more details: Security and FileVault

Quirks

Info

Relating to quirks with the UEFI environment, for us we'll be changing the following:

Quirk	Enabled	Comment
ReleaseUsbOwnership	YES	
UnblockFsConnect	NO	Needed mainly by HP motherboards

▶ More in-depth Info

ReservedMemory

Used for exempting certain memory regions from OSes to use, mainly relevant for Sandy Bridge iGPUs or systems with faulty memory. Use of this quirk is not covered in this guide

Cleaning up

And now you're ready to save and place it into your EFI under EFI/OC.

For those having booting issues, please make sure to read the Troubleshooting section first and if your questions are still unanswered we have plenty of resources at your disposal:

- r/Hackintosh Subreddit
- r/Hackintosh Discord

Config reminders

HP Users:

- Kernel -> Quirks -> LapicKernelPanic -> True
  - You will get a kernel panic on LAPIC otherwise
- UEFI -> Quirks -> UnblockFsConnect -> True

Dell Users:

For Skylake and newer:

- Kernel -> Quirk -> CustomSMBIOSGuid -> True
- PlatformInfo -> UpdateSMBIOSMode -> Custom

Intel BIOS settings

- Note: Most of these options may not be present in your firmware, we recommend matching up as closely as possible but don't be too concerned if many of these options are not available in your BIOS

Disable

- Fast Boot
- Secure Boot
- Serial/COM Port
- Parallel Port
- VT-d (can be enabled if you set `DisableIoMapper` to YES)
- Compatibility Support Module (CSM) (**Must be off in most cases, GPU errors/stalls like `gIO` are common when this option is enabled**)
- Thunderbolt(For initial install, as Thunderbolt can cause issues if not setup correctly)
- Intel SGX
- Intel Platform Trust
- CFG Lock (MSR 0xE2 write protection)(**This must be off, if you can't find the option then enable `AppleXcpmCfgLock` under Kernel -> Quirks. Your hack will not boot with CFG-Lock enabled**)

Enable

- VT-x
- Above 4G Decoding
- Hyper-Threading
- Execute Disable Bit
- EHCI/XHCI Hand-off
- OS type: Windows 8.1/10 UEFI Mode (some motherboards may require "Other OS" instead)
- DVMT Pre-Allocated(iGPU Memory): 64MB or higher
- SATA Mode: AHCI

Once done here, we need to edit a couple extra values. Head to the Apple Secure Boot Page

Help us improve this page!

Last Updated: 7/11/2023, 12:59:44 AM

← Broadwell

Kaby Lake →