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Support	Version
Initial macOS Support	macOS 10.13, High Sierra
Last Supported OS	macOS 12 Monterey
Note	For Ventura information, see macOS 13 Ventura

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!

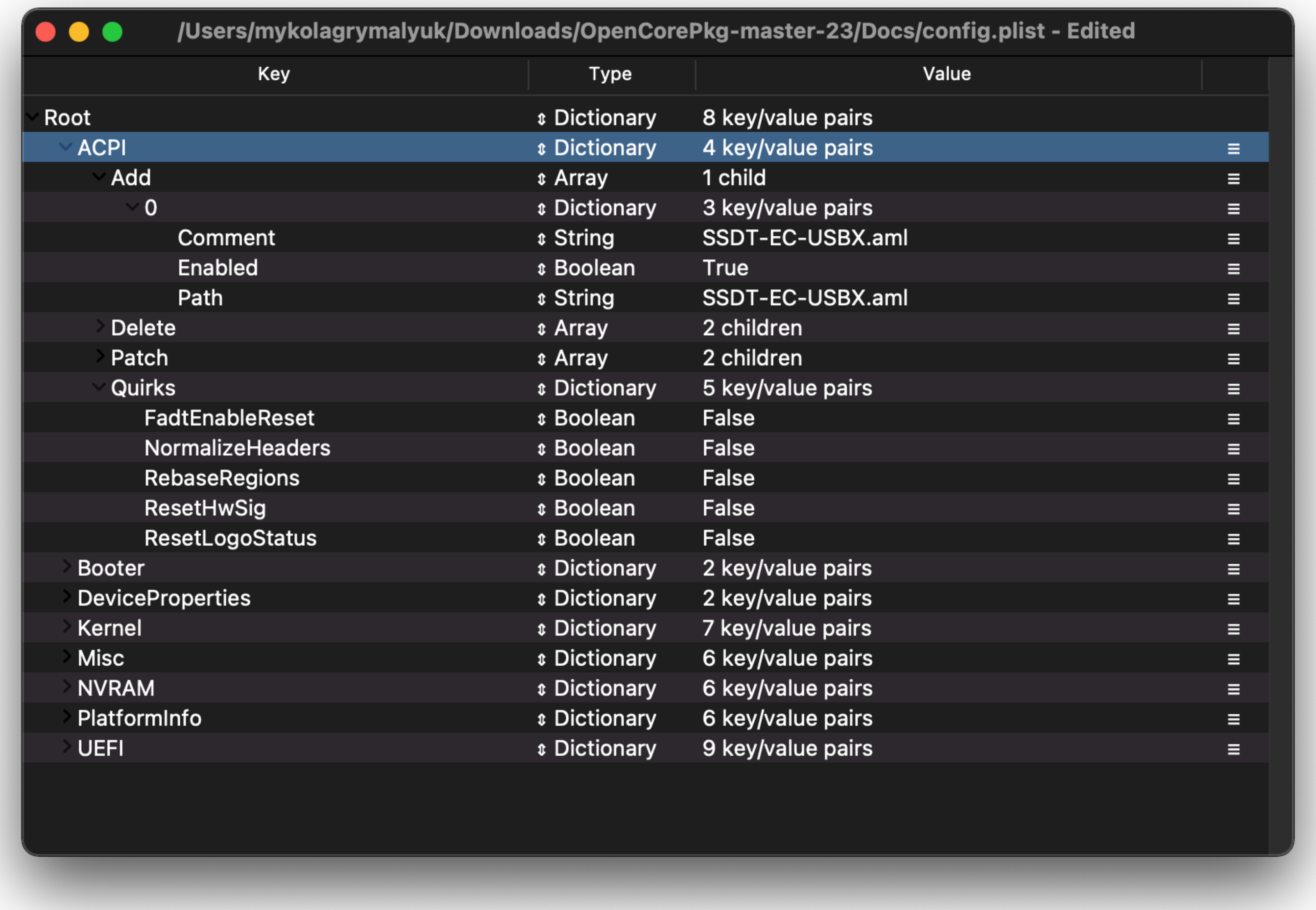
Now with all that, a quick reminder of the tools we need

- ProperTree
  - Universal plist editor
- GenSMBIOS
  - For generating our SMBIOS data
- Sample/config.plist
  - See previous section on how to obtain: config.plist Setup
- AMD Kernel Patches
  - Needed for booting macOS on AMD hardware(save these for later, we'll go over how to use them below)
  - Supporting AMD Family 15h, 16h, 17h and 19h

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/Downloads/OpenCorePkg-master-23/Docs/config.plist - Edited

Key	Type	Value
Root	Dictionary	8 key/value pairs
ACPI	Dictionary	4 key/value pairs
Add	Array	1 child
0	Dictionary	3 key/value pairs
Comment	String	SSDT-EC-USBX.aml
Enabled	Boolean	True
Path	String	SSDT-EC-USBX.aml
Delete	Array	2 children
Patch	Array	2 children
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	7 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

Required SSDTs	Description
SSDT-EC-USBX	Fixes both the embedded controller and USB power, see Getting Started With ACPI Guide

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	for more details.

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.

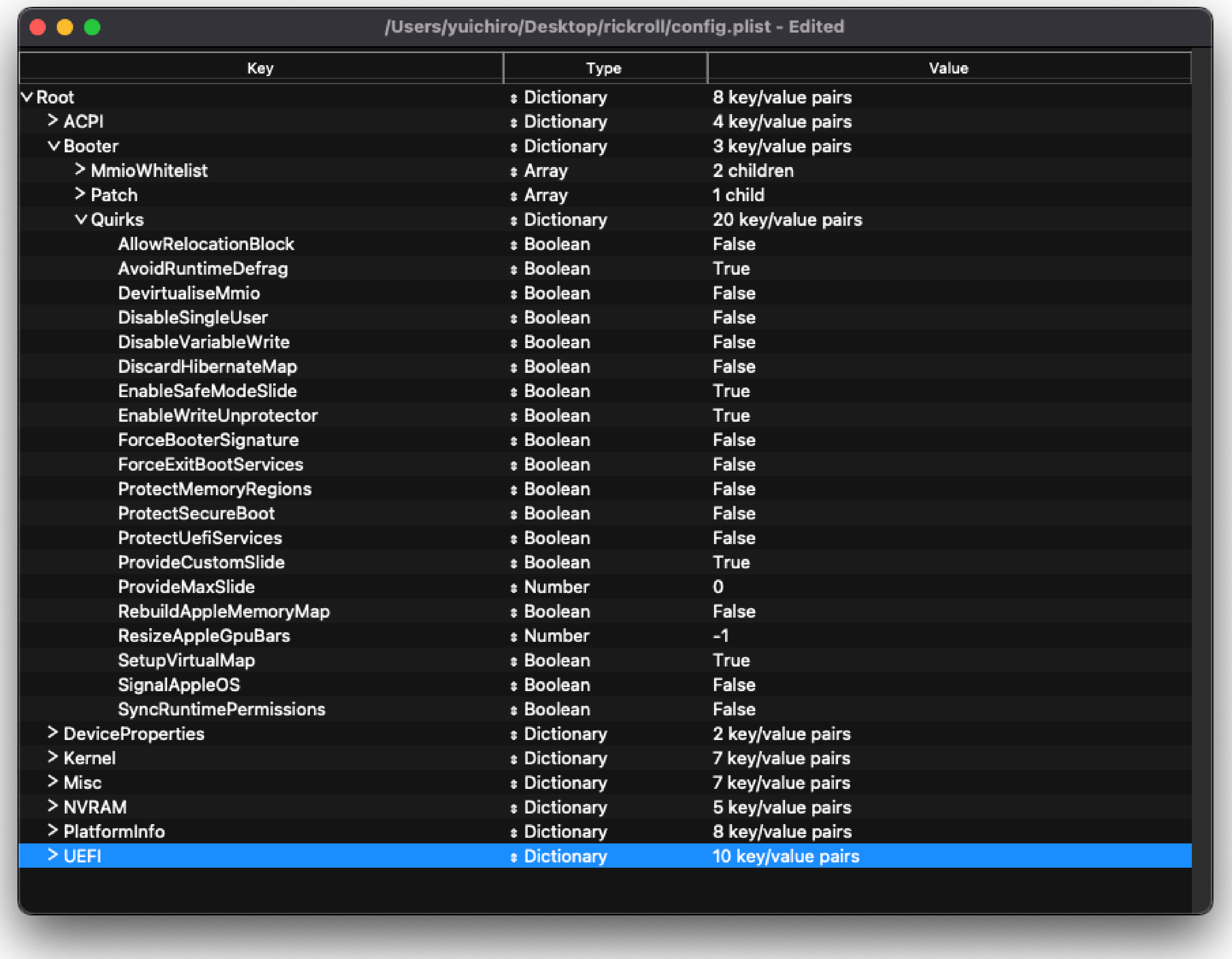
Patch

This section allows us to dynamically modify parts of the ACPI (DSDT, SSDT, etc.) via OpenCore. For us, our patches are handled by our SSDTs. This is a much cleaner solution as this will allow us to boot Windows and other OSes with OpenCore

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

This section is dedicated to quirks relating to boot.efi patching with OpenRuntime, the replacement for AptioMemoryFix.efi

MmioWhitelist

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

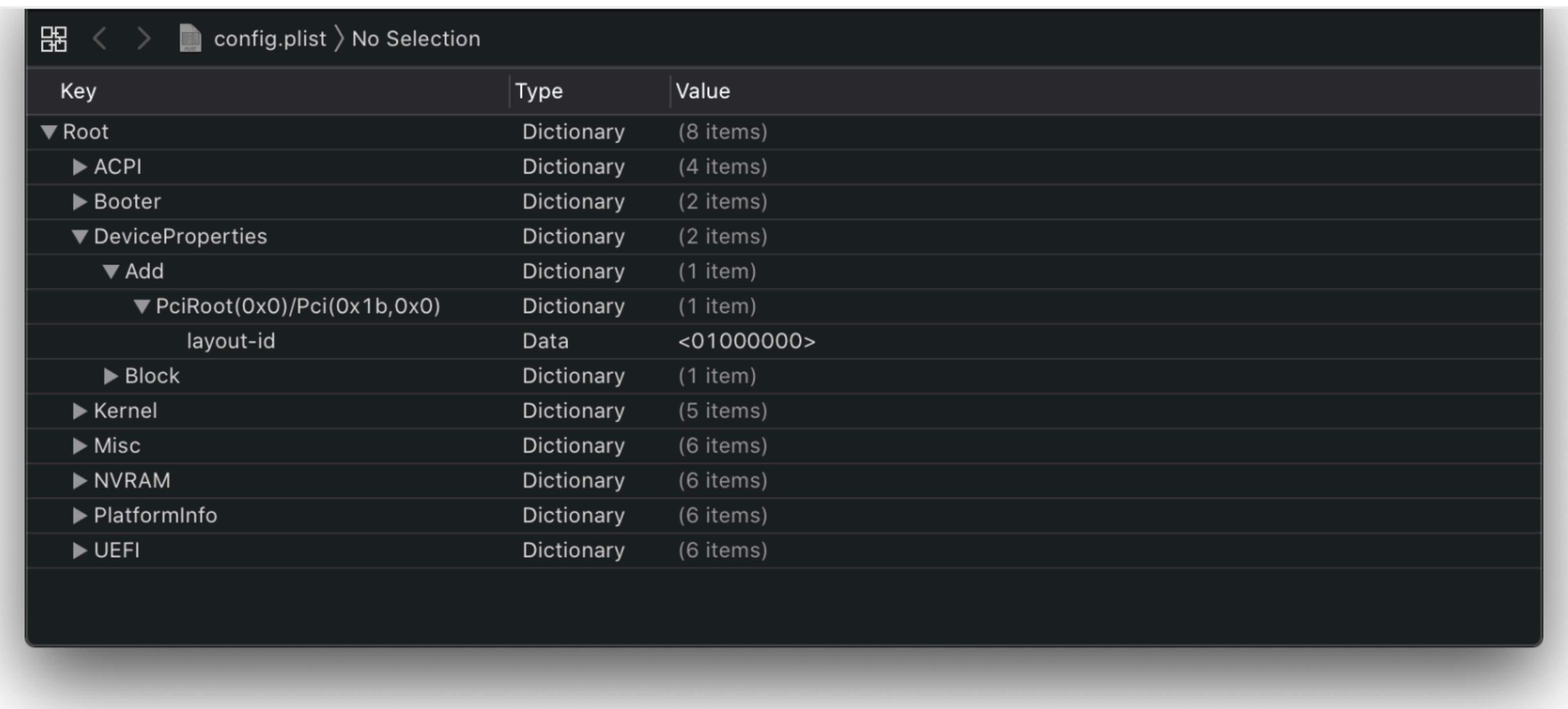
Quirks

Info

Settings relating to boot.efi patching and firmware fixes, for us, we leave it as default

▶ More in-depth Info

DeviceProperties



config.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(0x1b,0x0) Dictionary (1 item)
          layout-id              Data         <01000000>
    ▶ Block                      Dictionary   (1 item)
  ▶ Kernel                       Dictionary   (5 items)
  ▶ Misc                         Dictionary   (6 items)
  ▶ NVRAM                        Dictionary   (6 items)
  ▶ PlatformInfo                 Dictionary   (6 items)
  ▶ UEFI                         Dictionary   (6 items)
```

Add

Sets device properties from a map.

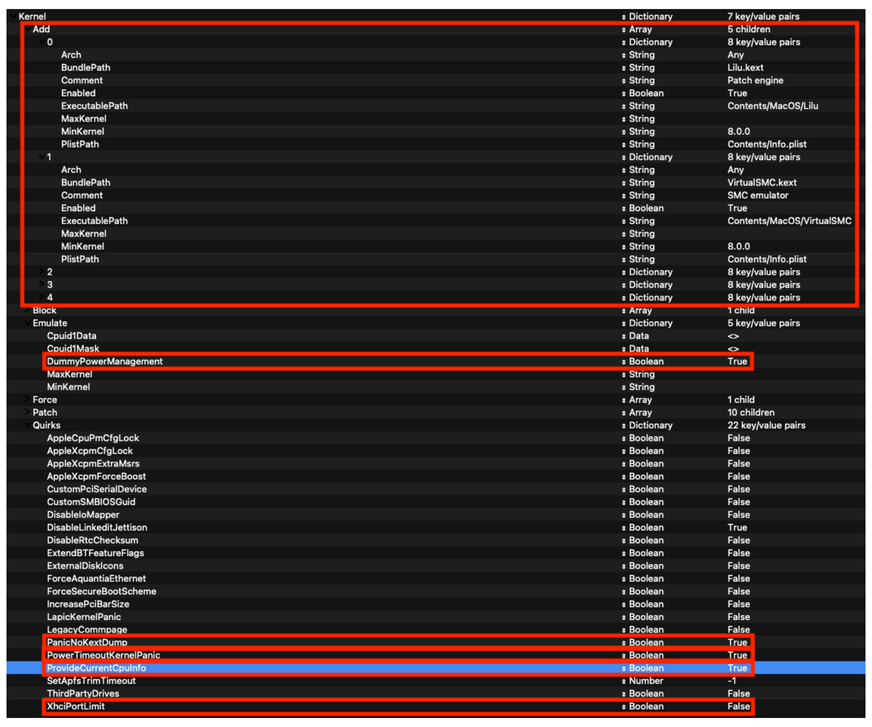
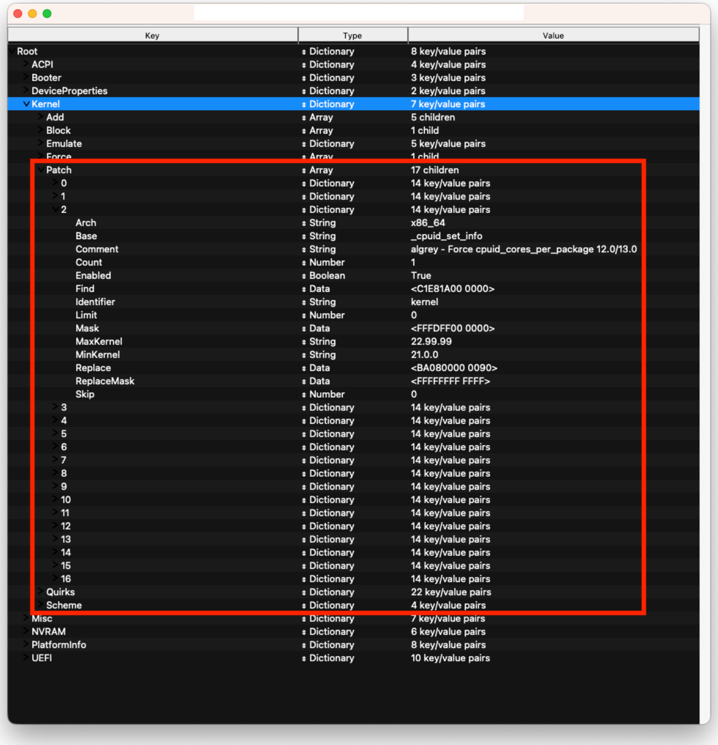
By default, the Sample.plist has this section set for audio which we'll be setting up by setting the layout ID in the boot-args section, so removal of `PciRoot(0x0)/Pci(0x1b,0x0)` is also recommended from the `Add` section.

TL;DR, delete all the PciRoot's here as we won't be using this section.

Delete

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

Kernel

Kernel	Kernel Patches
	

```
Kernel                          Dictionary   7 key/value pairs
  Add                           Array        5 children
    0                           Dictionary   8 key/value pairs
      Arch                      String       Any
      BundlePath                String       Lilu.kext
      Comment                   String       Patch engine
      Enabled                   Boolean      True
      ExecutablePath            String       Contents/MacOS/Lilu
      MaxKernel                 String
      MinKernel                 String       8.0.0
      PlistPath                 String       Contents/Info.plist
    1                           Dictionary   8 key/value pairs
      Arch                      String       Any
      BundlePath                String       VirtualSMC.kext
      Comment                   String       SMC emulator
      Enabled                   Boolean      True
      ExecutablePath            String       Contents/MacOS/VirtualSMC
      MaxKernel                 String
      MinKernel                 String       8.0.0
      PlistPath                 String       Contents/Info.plist
    2                           Dictionary   8 key/value pairs
    3                           Dictionary   8 key/value pairs
    4                           Dictionary   8 key/value pairs
  Block                         Array        1 child
  Emulate                       Dictionary   5 key/value pairs
    Cpuid1Data                  Data         <>
    Cpuid1Mask                  Data         <>
    DummyPowerManagement        Boolean      True
    MaxKernel                   String
    MinKernel                   String
  Force                         Array        1 child
  Patch                         Array        10 children
  Quirks                        Dictionary   22 key/value pairs
    AppleCpuPmCfgLock           Boolean      False
    AppleXcpmCfgLock            Boolean      False
    AppleXcpmExtraMsrs          Boolean      False
    AppleXcpmForceBoost         Boolean      False
    CustomPciSerialDevice       Boolean      False
    CustomSMBIOSGuid            Boolean      False
    DisableIoMapper             Boolean      False
    DisableLinkeditJettison     Boolean      True
    DisableRtcChecksum          Boolean      False
    ExtendBTFeatureFlags        Boolean      False
    ExternalDiskIcons           Boolean      False
    ForceAquantiaEthernet       Boolean      False
    ForceSecureBootScheme       Boolean      False
    IncreasePciBarSize          Boolean      False
    LapicKernelPanic            Boolean      False
    LegacyCommpage              Boolean      False
    PanicNoKextDump             Boolean      True
    PowerTimeoutKernelPanic     Boolean      True
    ProvideCurrentCpuInfo       Boolean      True
    SetApfsTrimTimeout          Number       -1
    ThirdPartyDrives            Boolean      False
    XhciPortLimit               Boolean      False
```

```
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
    Add                Array        5 children
    Block              Array        1 child
    Emulate            Dictionary   5 key/value pairs
    Force              Array        1 child
    Patch              Array        17 children
      0                Dictionary   14 key/value pairs
      1                Dictionary   14 key/value pairs
      2                Dictionary   14 key/value pairs
        Arch           String       x86_64
        Base           String       _cpuid_set_info
        Comment        String       algrey - Force cpuid_cores_per_package 12.0/13.0
        Count          Number       1
        Enabled        Boolean      True
        Find           Data         <C1E81A00 0000>
        Identifier     String       kernel
        Limit          Number       0
        Mask           Data         <FFFDFF00 0000>
        MaxKernel      String       22.99.99
        MinKernel      String       21.0.0
        Replace        Data         <BA080000 0090>
        ReplaceMask    Data         <FFFFFFFF FFFF>
        Skip           Number       0
      3                Dictionary   14 key/value pairs
      4                Dictionary   14 key/value pairs
      5                Dictionary   14 key/value pairs
      6                Dictionary   14 key/value pairs
      7                Dictionary   14 key/value pairs
      8                Dictionary   14 key/value pairs
      9                Dictionary   14 key/value pairs
      10               Dictionary   14 key/value pairs
      11               Dictionary   14 key/value pairs
      12               Dictionary   14 key/value pairs
      13               Dictionary   14 key/value pairs
      14               Dictionary   14 key/value pairs
      15               Dictionary   14 key/value pairs
      16               Dictionary   14 key/value pairs
    Quirks             Dictionary   22 key/value pairs
    Scheme             Dictionary   4 key/value pairs
  Misc                 Dictionary   7 key/value pairs
  NVRAM                Dictionary   6 key/value pairs
  PlatformInfo         Dictionary   8 key/value pairs
  UEFI                 Dictionary   10 key/value pairs
```

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

Info

Needed for spoofing unsupported CPUs like Pentiums and Celerons and to disable CPU power management on unsupported CPUs (such as AMD CPUs)

Quirk	Enabled
DummyPowerManagement	YES

▶ More in-depth Info

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

Patch

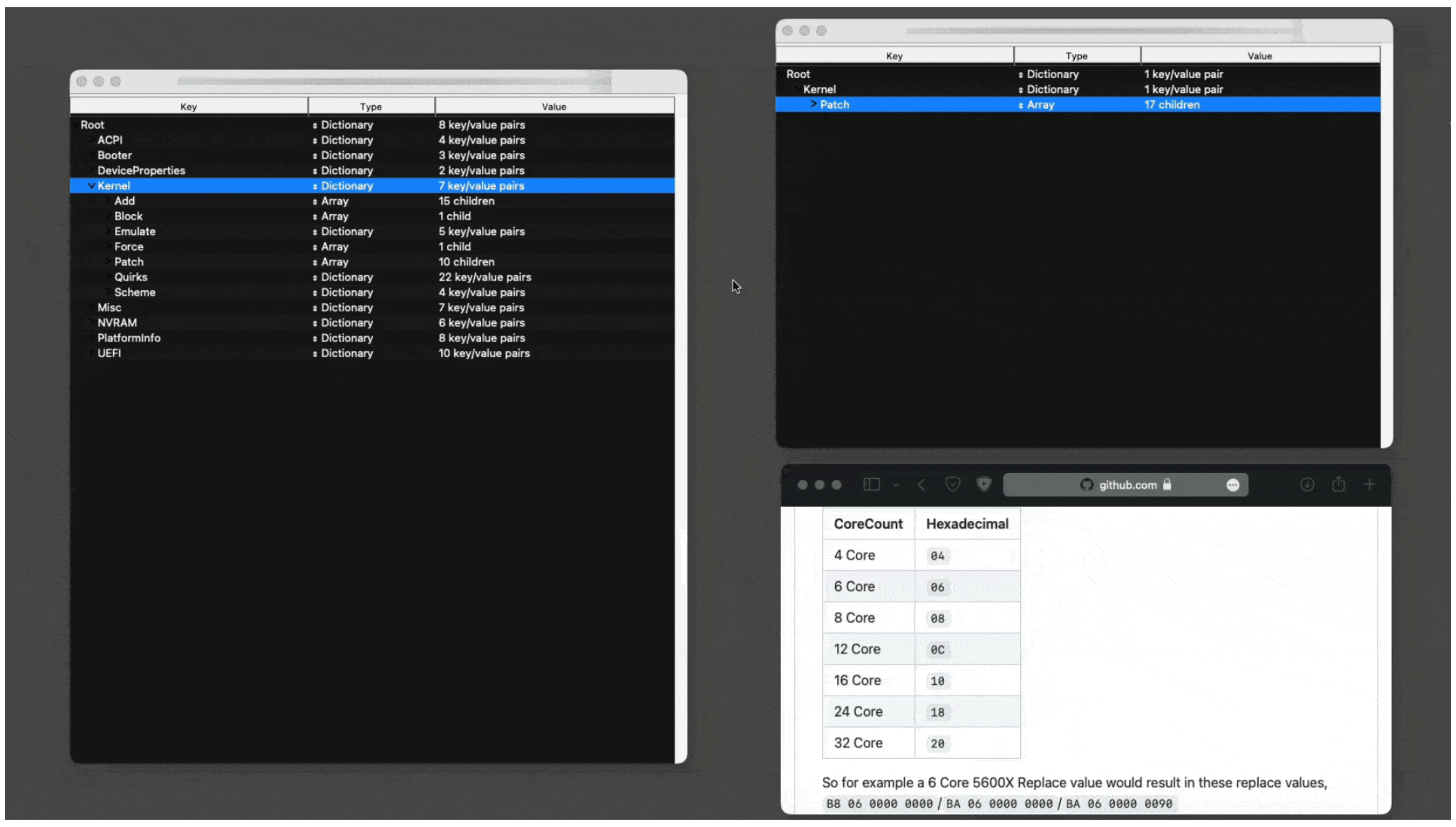
This is where the AMD kernel patching magic happens. Please do note that if coming from Clover, `KernelToPatch` and `MatchOS` from Clover becomes `Kernel` and `MinKernel` / `MaxKernel` in OpenCore. The latest AMD kernel patches can always be found on the AMD Vanilla GitHub Repository .

Kernel patches:

- Bulldozer/Jaguar (15h/16h) (10.13 - 12.x)

To merge:

- Open both files,
- Delete the `Kernel -> Patch` section from config.plist
- Copy the `Kernel -> Patch` section from patches.plist
- Paste into where old patches were in config.plist



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
Add	Array	15 children
Block	Array	1 child
Emulate	Dictionary	5 key/value pairs
Force	Array	1 child
Patch	Array	10 children
Quirks	Dictionary	22 key/value pairs
Scheme	Dictionary	4 key/value pairs
Misc	Dictionary	7 key/value pairs
NVRAM	Dictionary	6 key/value pairs
PlatformInfo	Dictionary	8 key/value pairs
UEFI	Dictionary	10 key/value pairs

Key	Type	Value
Root	Dictionary	1 key/value pair
Kernel	Dictionary	1 key/value pair
Patch	Array	17 children

CoreCount	Hexadecimal
4 Core	04
6 Core	06
8 Core	08
12 Core	0C
16 Core	10
24 Core	18
32 Core	20

So for example a 6 Core 5600X Replace value would result in these replace values,
`B8 06 0000 0000` / `BA 06 0000 0000` / `BA 06 0000 0090`

You will also need to modify four patches, all named `algrey - Force cpuid_cores_per_package` . You only need to change the `Replace` value. You should change:

- `B8000000 0000` => `B8 <core count> 0000 0000`
- `BA000000 0000` => `BA <core count> 0000 0000`
- `BA000000 0090` => `BA <core count> 0000 0090`
- `BA000000 00` => `BA <core count> 0000 00`

Where `<core count>` is replaced with the physical core count of your CPU in hexadecimal. For example, an 8-Core 5800X would have the new Replace value be:

- `B8 08 0000 0000`
- `BA 08 0000 0000`
- `BA 08 0000 0090`
- `BA 08 0000 00`

▶ Core Count => Hexadecimal Table

Quirks

Info

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

Quirk	Enabled	Comment
PanicNoKextDump	YES	
PowerTimeoutKernelPanic	YES	
ProvideCurrentCpuInfo	YES	
XhciPortLimit	YES	Disable if running macOS 11.3+

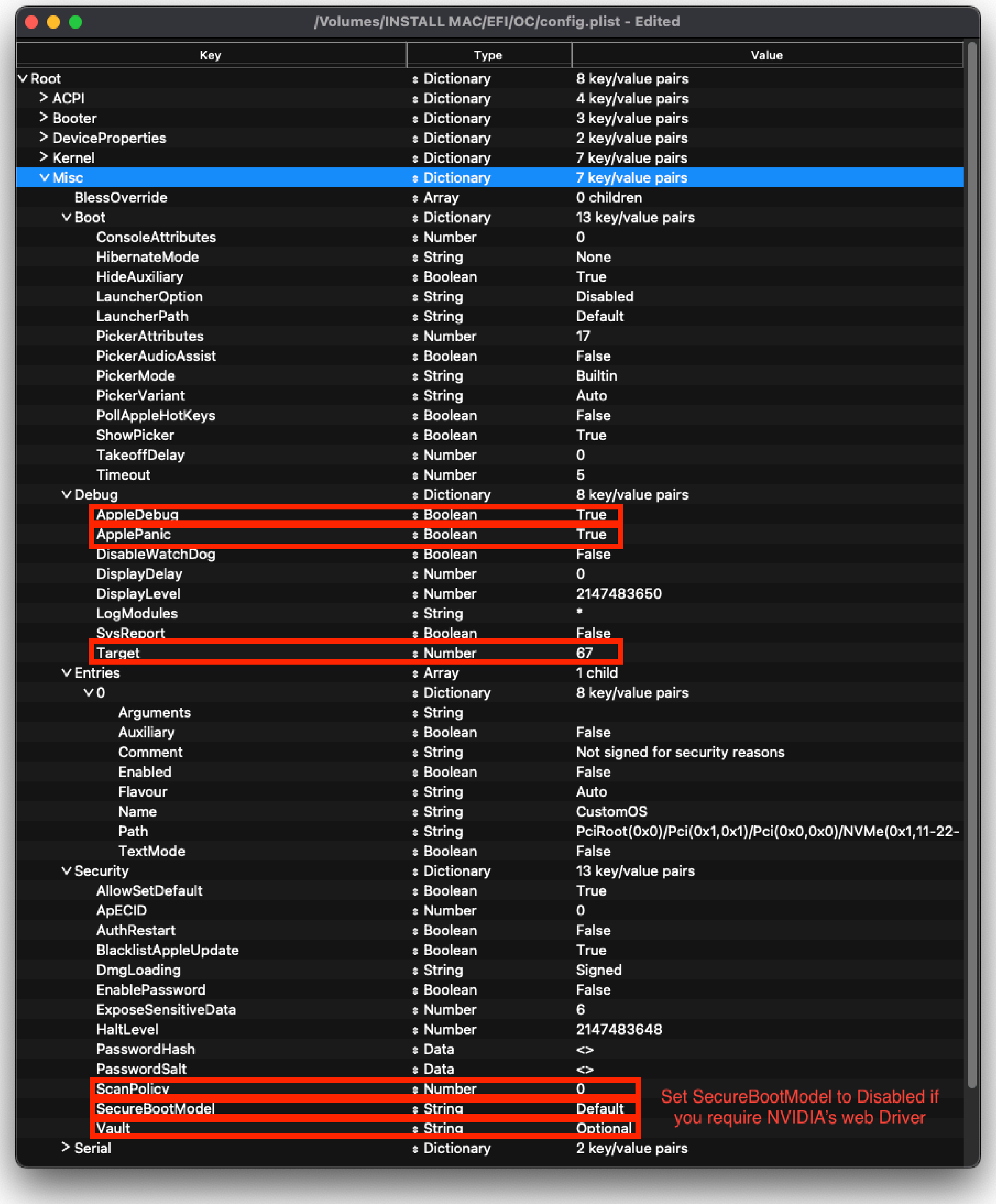
▶ More in-depth Info

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:

Quirk	Enabled
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:

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

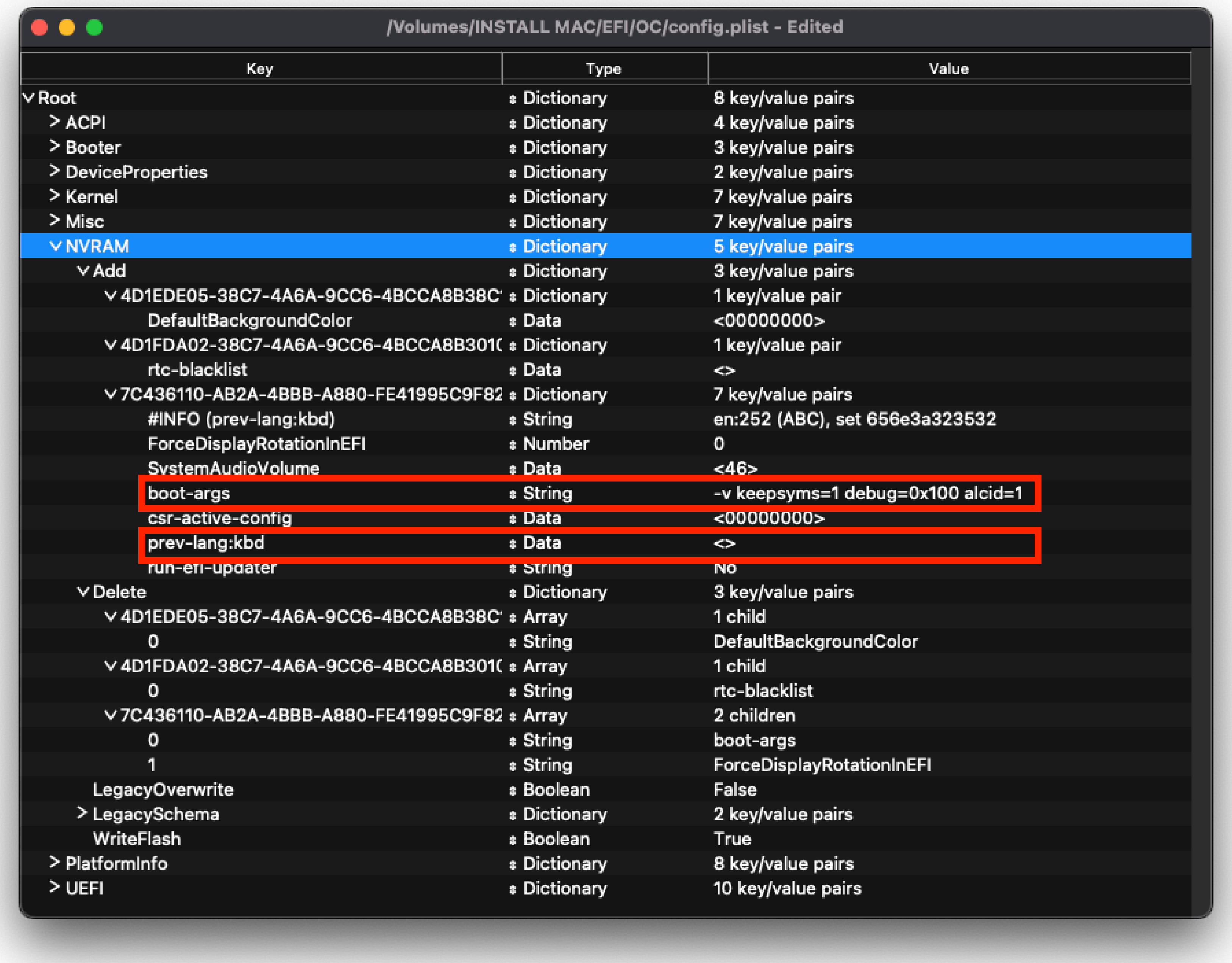
Used for running OC debugging tools like the shell, ProperTree's snapshot function will add these for you.

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

4D1EDE05-38C7-4A6A-9CC6-4BCCA8B38C14

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

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.
npci=0x3000	This disables some PCI debugging related to `kIOPCIConfiguratorPFM64` and `gIOPCITunnelledKey` . This is an alternative to having Above 4G Decoding enabled in your BIOS. Do not use this unless you don't have it in your BIOS. Required for when getting stuck on `[PCI configuration begin]` as there are IRQ conflicts relating to your PCI lanes. Source

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

boot-args	Description
agdpmod=pikera	Used for disabling board ID checks on some Navi GPUs (RX 5000 & 6000 series), without this you'll get a black screen. **Don't use if you don't have Navi** (ie. Polaris and Vega cards shouldn't use this)
-radcodec	Used for allowing officially unsupported AMD GPUs (spoofed) to use the Hardware Video Encoder
radpg=15	Used for disabling some power-gating modes, helpful for properly initializing AMD Cape Verde based GPUs
unfairgva=1	Used for fixing hardware DRM support on supported AMD GPUs
nvda_drv_vrl=1	Used for enabling NVIDIA's Web Drivers on Maxwell and Pascal cards in macOS Sierra and High Sierra

- **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

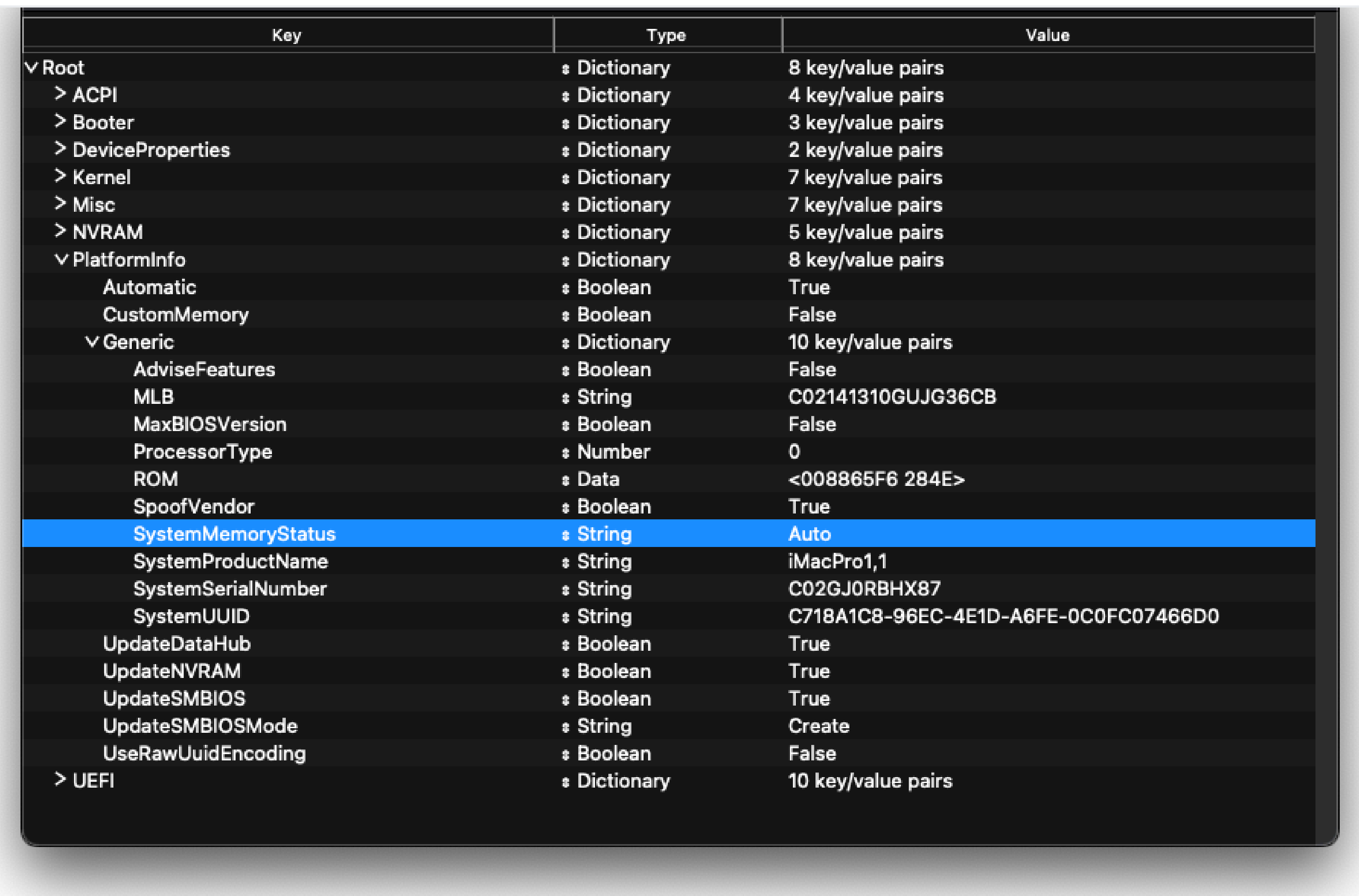
Info

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. For us, we'll be changing the following:

Quirk	Enabled
WriteFlash	YES

▶ More in-depth Info

PlatformInfo



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
Automatic	Boolean	True
CustomMemory	Boolean	False
∨ Generic	Dictionary	10 key/value pairs
AdviseFeatures	Boolean	False
MLB	String	C02141310GUJG36CB
MaxBIOSVersion	Boolean	False
ProcessorType	Number	0
ROM	Data	<008865F6 284E>
SpoofVendor	Boolean	True
SystemMemoryStatus	String	Auto
SystemProductName	String	iMacPro1,1
SystemSerialNumber	String	C02GJ0RBHX87
SystemUUID	String	C718A1C8-96EC-4E1D-A6FE-0C0FC07466D0
UpdateDataHub	Boolean	True
UpdateNVRAM	Boolean	True
UpdateSMBIOS	Boolean	True
UpdateSMBIOSMode	String	Create
UseRawUuidEncoding	Boolean	False
> UEFI	Dictionary	10 key/value pairs

Info

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

For this example, we'll choose the MacPro7,1 SMBIOS but some SMBIOS play with certain GPUs better than others:

- MacPro7,1: AMD Polaris and newer
  - Note that MacPro7,1 is exclusive to macOS 10.15, Catalina and newer
- iMacPro1,1: NVIDIA Maxwell and Pascal or AMD Polaris and newer
  - Use if you need High Sierra or Mojave, otherwise use MacPro7,1
- iMac14,2: NVIDIA Maxwell and Pascal
  - Use if you get black screens on iMacPro1,1 after installing Web Drivers with an NVIDIA GPU
- MacPro6,1: AMD GCN GPUs (supported HD and R5/R7/R9 series)

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:

```sh
  #######################################################
 #               MacPro7,1 SMBIOS Info                 #
#######################################################

Type:         MacPro7,1
Serial:       F5KZV0JVP7QM
Board Serial: F5K9518024NK3F7JC
SmUUID:       535B897C-55F7-4D65-A8F4-40F4B96ED394
Apple ROM:    001D4F0D5E22
```

The order is `Product | Serial | Board Serial (MLB)`

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.

The `Apple ROM` part gets copied to Generic -> ROM.

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."

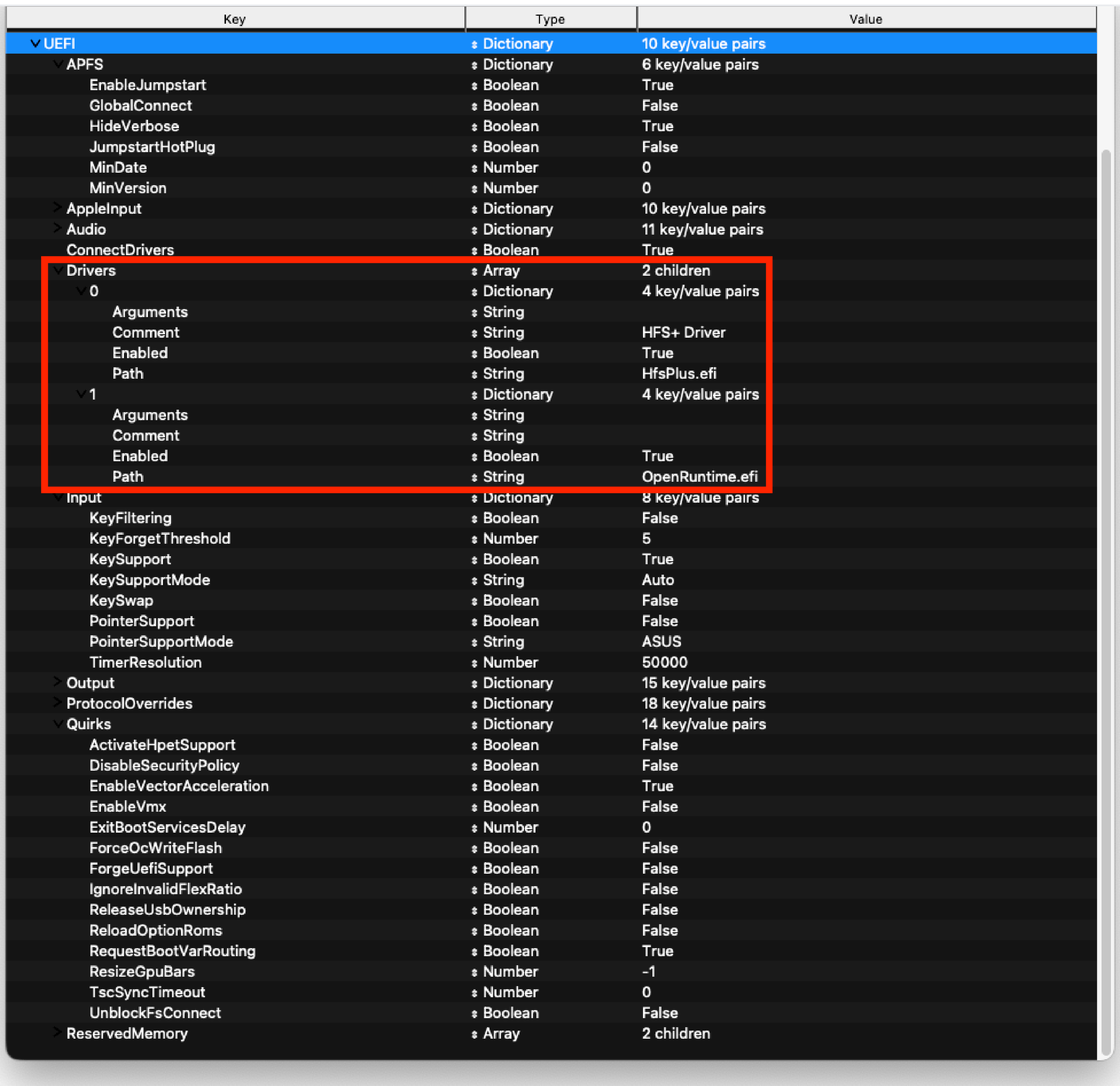
Automatic: YES

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

Generic

▶ More in-depth Info

UEFI



Key	Type	Value
UEFI	Dictionary	10 key/value pairs
APFS	Dictionary	6 key/value pairs
EnableJumpstart	Boolean	True
GlobalConnect	Boolean	False
HideVerbose	Boolean	True
JumpstartHotPlug	Boolean	False
MinDate	Number	0
MinVersion	Number	0
AppleInput	Dictionary	10 key/value pairs
Audio	Dictionary	11 key/value pairs
ConnectDrivers	Boolean	True
Drivers	Array	2 children
0	Dictionary	4 key/value pairs
Arguments	String	
Comment	String	HFS+ Driver
Enabled	Boolean	True
Path	String	HfsPlus.efi
1	Dictionary	4 key/value pairs
Arguments	String	
Comment	String	
Enabled	Boolean	True
Path	String	OpenRuntime.efi
Input	Dictionary	8 key/value pairs
KeyFiltering	Boolean	False
KeyForgetThreshold	Number	5
KeySupport	Boolean	True
KeySupportMode	String	Auto
KeySwap	Boolean	False
PointerSupport	Boolean	False
PointerSupportMode	String	ASUS
TimerResolution	Number	50000
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
IgnoreInvalidFlexRatio	Boolean	False
ReleaseUsbOwnership	Boolean	False
ReloadOptionRoms	Boolean	False
RequestBootVarRouting	Boolean	True
ResizeGpuBars	Number	-1
TscSyncTimeout	Number	0
UnblockFsConnect	Boolean	False
ReservedMemory	Array	2 children

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.

- For further use of AudioDxe and the Audio section, please see the Post Install page: Add GUI and Boot-chime

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

▶ 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
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:

- AMD OS X Discord
- r/Hackintosh Subreddit

AMD 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
- Compatibility Support Module (CSM) (**Must be off in most cases, GPU errors/stalls like `gIO` are common when this option is enabled**)
- IOMMU

Enable

- Above 4G Decoding (**This must be on, if you can't find the option then add `npci=0x3000` to boot-args. Do not have both this option and npci enabled at the same time.**)
- EHCI/XHCI Hand-off
- OS type: Windows 8.1/10 UEFI Mode (some motherboards may require "Other OS" instead)
- 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

← Skylake-X/W and Cascade Lake-X/W

Ryzen and Threadripper(17h and 19h) →