

SSD7000 Series NVMe RAID Solutions MacOS11.0 Installation Guide

V1.04– Aug, 2021

Contents

| | |
|---|----|
| Overview..... | 4 |
| Prerequisites..... | 5 |
| 1. Disabling macOS Secure boot for T2 Systems..... | 6 |
| Disabling Secure Boot..... | 6 |
| 2. Reduced Security Policy – For Apple M1 Platform..... | 7 |
| Reduced Security Policy..... | 7 |
| 3. Installing the Device Driver..... | 8 |
| macOS Big Sur 11.0 Driver Installation Procedure..... | 8 |
| 4. Updating the Device Driver..... | 13 |
| Updating the Device Driver (for macOS11.0)..... | 13 |
| 5. Uninstalling the Device Driver..... | 18 |
| Uninstalling the Device Driver for macOS11.0..... | 18 |
| 6. Installing the RAID Management Software (WebGUI)..... | 18 |
| Installing the WebGUI for macOS11.0..... | 18 |
| 7. Updating the WebGUI for macOS11.0..... | 20 |
| 8. Uninstalling the WebGUI for macOS11.0..... | 20 |
| 9. Trouble shooting..... | 21 |
| Unable to connect to the WebGUI..... | 21 |
| This error can be triggered by one of the following issues:..... | 21 |
| 01. The HighPoint NVMe hardware is not recognized by macOS..... | 21 |
| 02. The HighPoint NVMe device driver is not installed or is not loading properly..... | 21 |
| 03. WEBGUI service is not running..... | 21 |
| 04. The system’s SIP status is incorrect..... | 21 |
| 05. If you are using a T2 system, Secure Boot may not be ‘Disabled’..... | 21 |
| 06. If you are using Apple M1 system, Security Policy may not be ‘Reduced’..... | 21 |
| 01. Verifying the HighPoint NVMe hardware..... | 21 |
| 02. Make sure the HighPoint NVMe Driver is loaded..... | 21 |
| 03. Check the SIP status..... | 22 |
| 04. For T2 Systems: Make sure Secure Boot is disabled..... | 22 |
| 05. For Apple M1 Platform: Make sure Security Policy is reduced..... | 22 |
| The WebGUI can’t connect to a remote system..... | 22 |
| Appendix..... | 23 |
| Collecting the macOS version..... | 23 |
| Check the security & privacy..... | 23 |
| Verifying Product Installation..... | 24 |

| | |
|--|----|
| WEBGUI Screenshots..... | 26 |
| WEBGUI service restart..... | 26 |
| Checking the SIP Status..... | 26 |
| Systems with T2 chipsets – Secure Boot status..... | 27 |
| Apple M1 Platform – Reduced security policy..... | 27 |
| Checking the Driver status and Version..... | 27 |
| How to Collect System Logs..... | 28 |

Overview

This guide includes important hardware/software requirements, installation & upgrade procedures, and troubleshooting tips for using SSD7000 NVMe RAID controllers, the RocketStor 6661A-NVMe Thunderbolt™ 3 NVMe RAID solution, and SSD6540/6540M RAID enclosures with a macOS operating system.

Prerequisites

This section describes the base hardware and software requirements for SSD7000 series NVMe RAID controllers & enclosures.

Driver Installation

This section covers driver installation, driver upgrade and driver uninstallation procedures for SSD7000 series NVMe RAID controllers & enclosures in a macOS environment.

Troubleshooting

Please consult this section if you encounter any difficulties installing or using SSD7000 series NVMe RAID controllers or enclosures. It includes descriptions and solutions for commonly reported technical issues.

Appendix

This section describes how to collect trouble shooting information for support cases you have submitted via our Online Support Portal.

Prerequisites

- 1) Make sure at least one NVMe SSD's has been installed into the HighPoint NVMe controller or enclosure. The driver will not install properly unless NVMe SSD's are detected by the hardware environment.
- 2) The SSD7101A-1/7120/6540/6540M/7103/7104/7140/7505/7502/7540/ NVMe device must be installed into a PCIe 3.0 slot with x16 dedicated lanes. The SSD7204 can be installed into a PCIe 3.0 x8 or x16 slot.

If you are using the RocketStor 6661A-NVMe or a SSD7000 NVMe RAID controller via the RocketStor 6661A adapter, the RocketStor unit must be plugged into a Thunderbolt™ 3 port.

- 3) Operating System Support: macOS 11.0
- 4) Before installing the driver and RAID Management software, you should log into the system as a System Administrator.
- 5) Identify the system as either T2 or Non-T2 based – if the system has a T2 chip, make sure to follow [section 1](#) before attempting to install any software for the HighPoint NVMe device.
- 6) If you're using the **Apple M1** Platform, make sure to follow [section 2](#) before attempting to install any software for the HighPoint NVMe device.

1. Disabling macOS Secure boot for T2 Systems

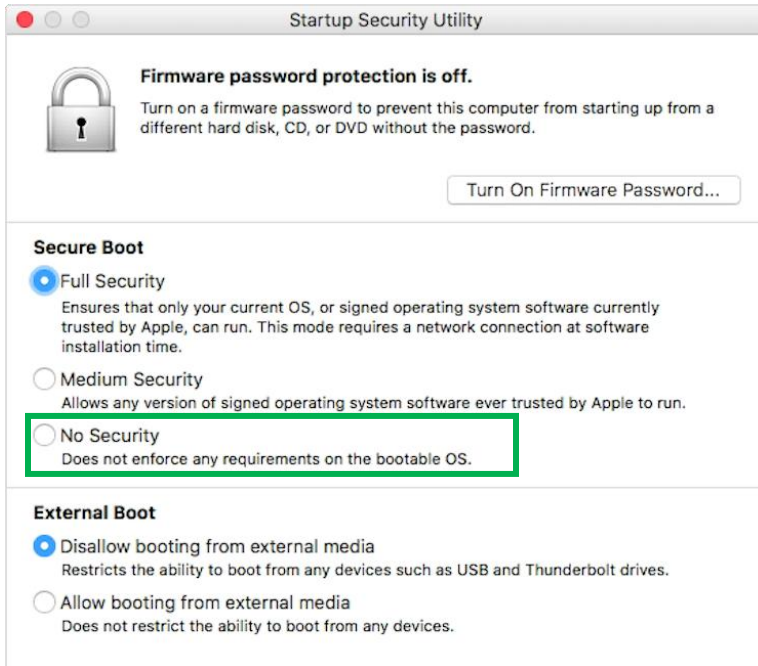
Customers working with Mac platforms manufactured in 2018 or later that feature a T2 security chip, will need to disable the **Secure Boot** in order to load drivers for third party devices.

HighPoint products affected by this requirement include our NVMe RAID product lines (SSD7100 and SSD7500 Series RAID Controllers and SSD6540 series NVMe RAID Enclosures).

For a list of products with the T2 Security Chipset, please visit the following website:
[Mac computers that have the Apple T2 Security Chip](#)

Disabling Secure Boot

In order to use these products with T2 systems, Secure Boot must be disabled. To disable this feature select "**No Security**" from the Startup Security Utility interface. You can access this menu by pressing the **Command (⌘)-R** keys after the Apple logo first appears during the boot-up process.



Instructions are available from Apple's website:
[About Secure Boot](#)

2. Reduced Security Policy – For Apple M1 Platform

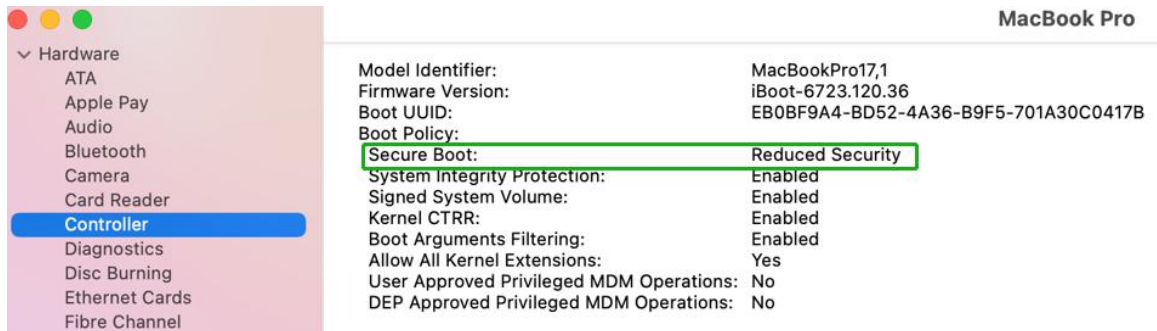
Customers working with Apple M1 Platforms manufactured will need to **reduce the Security Policy** in order to load drivers for third party devices.

HighPoint products affected by this requirement include our NVMe RAID product lines (SSD7100 and SSD7500 Series RAID Controllers and SSD6540 series NVMe RAID Enclosures).

Mac computers with Apple M1 chip, please visit the following website:
[Mac computers that have the Apple M1 Chip](#)

Check Security Policy settings to determine if they need to be changed, **if Secure Boot is Full Security please set to Reduced Security:**

System Information -> Hardware -> Controller -> Boot Policy



Reduced Security Policy

In order to use these products with Apple M1 Platform, Secure Boot must be **reduced Security**. Reduce this feature and select "**Allow user management of kernel extensions from Identified developers**" from the Startup Security Utility interface.

You can access this menu by:

Shutdown the system, **pressing and holding the Power Button** until you see **Loading Startup Options**.



Instructions are available from Apple's website:

[About Secure Boot for M1](#)

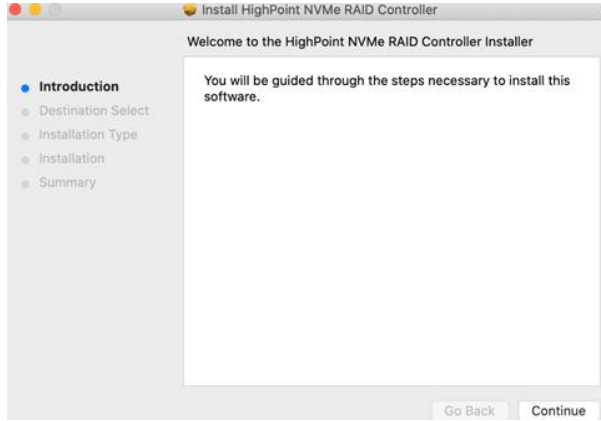
3. Installing the Device Driver

Current drivers can be downloaded from each product's **Software Downloads** webpage.

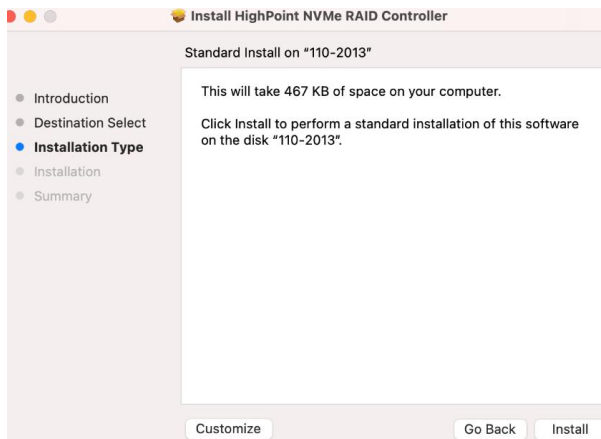
| Product | Download Page |
|--------------|---|
| SSD7101A-1 | https://www.highpoint-tech.com/USA_new/series-ssd7101a-1-download.htm |
| SSD7120 | https://highpoint-tech.com/USA_new/series-ssd7120-download.htm |
| SSD7204 | https://highpoint-tech.com/USA_new/series-ssd7204-download.htm |
| SSD7104 | https://highpoint-tech.com/USA_new/series-ssd7104-download.htm |
| SSD6540M | https://highpoint-tech.com/USA_new/series-ssd6540m-download.htm |
| SSD6540 | https://highpoint-tech.com/USA_new/series-ssd6540-download.htm |
| SSD7103 | https://highpoint-tech.com/USA_new/series-ssd7103-download.htm |
| SSD7140 | https://highpoint-tech.com/USA_new/series-ssd7140-download.htm |
| RS6661A-NVMe | https://highpoint-tech.com/USA_new/series-rs6661a-nvme-download.htm |
| SSD7505 | https://highpoint-tech.com/USA_new/series-ssd7500-download.htm |
| SSD7502 | https://www.highpoint-tech.com/USA_new/series-ssd7502-overview.html |
| SSD7540 | https://highpoint-tech.com/USA_new/series-ssd7500-download.htm |

macOS Big Sur 11.0 Driver Installation Procedure

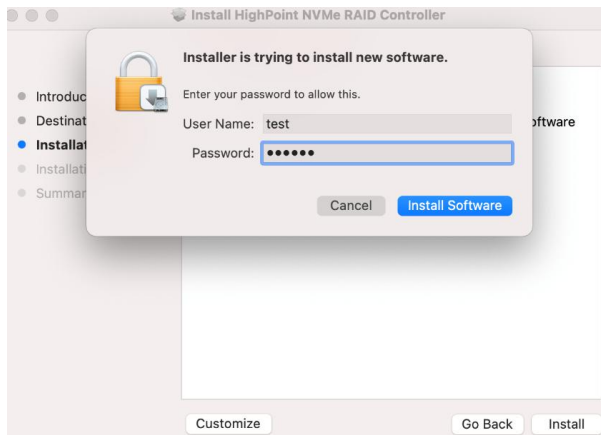
- 1) Locate the download and double click the **HighPointNVMe.pkg** package to start the installer. Click the **Continue** button:



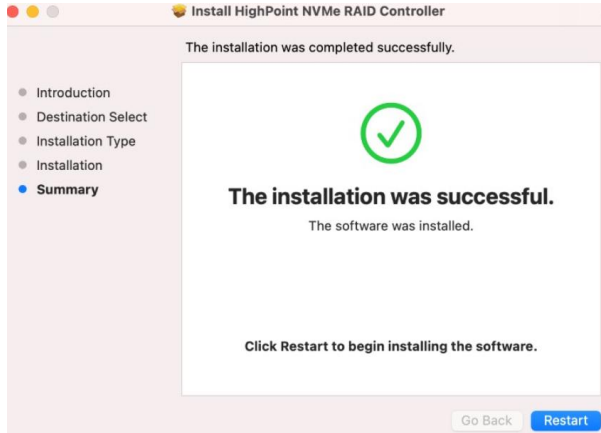
2) macOS will prompt you to install the driver. Click **Install** to proceed.



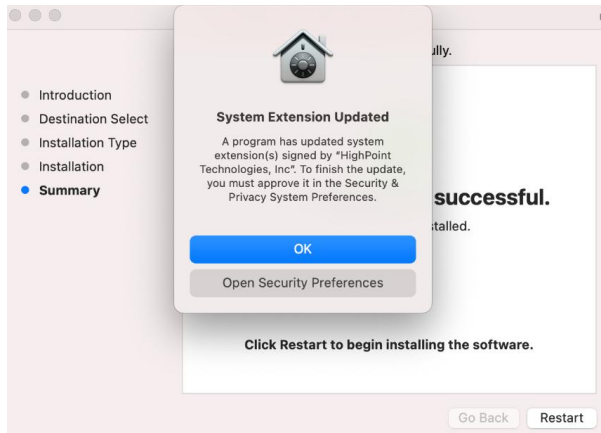
3) You will be prompted that installer is trying to install new software, enter the *Administrator* Username and Password. Once these have been entered, Click **Install Software**.



4) If no pop-ups appear, please proceed to the next step of installation. Click **Restart**.



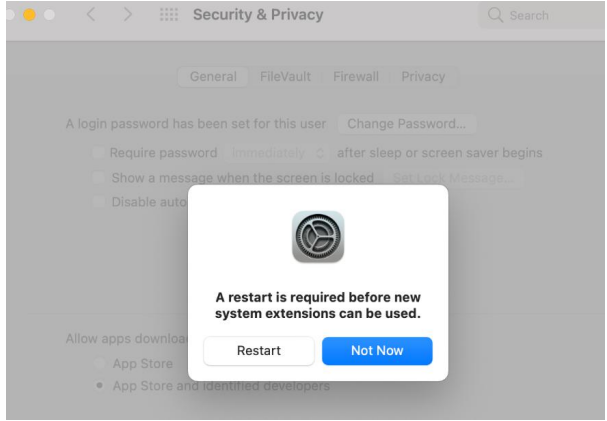
- 5) If you receive a popup window prompting you for permission, click **Open Security Preferences**.



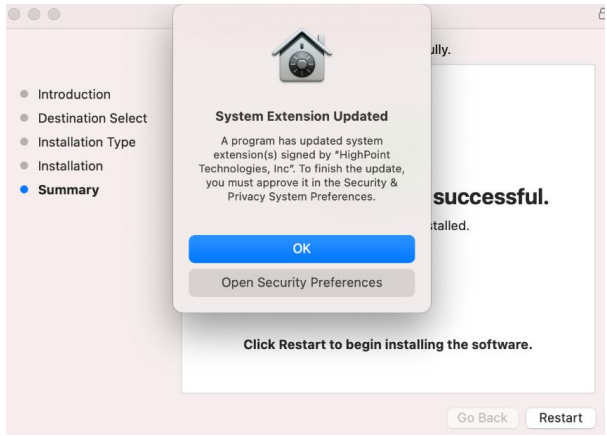
- 6) Make sure **App Store and identified developers** is checked, and then click **Allow**.



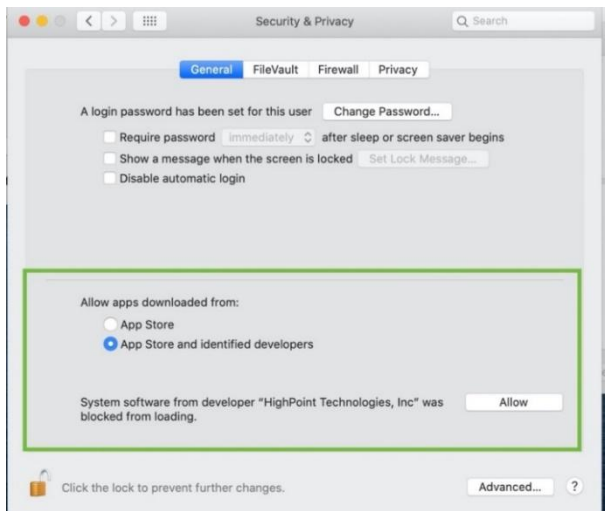
- 7) You will receive a popup window, prompting you to restart. Click **Not Now**.



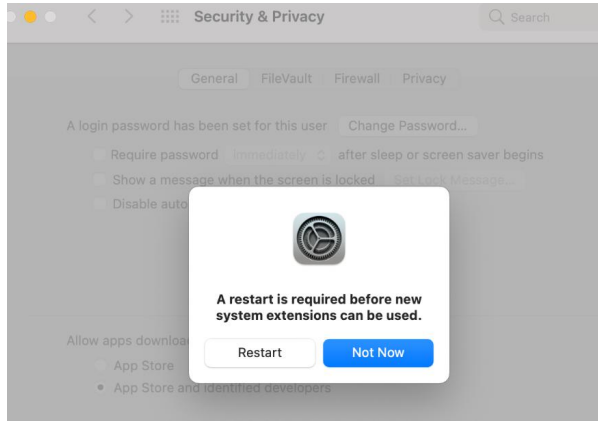
8) If you receive the permission prompt for the second time, click **“Open Security Preferences”** again.



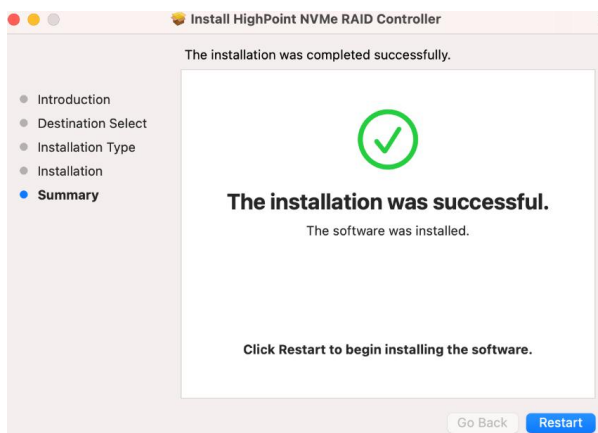
9) Make sure **App Store and identified developers** is checked, and then click **Allow**.



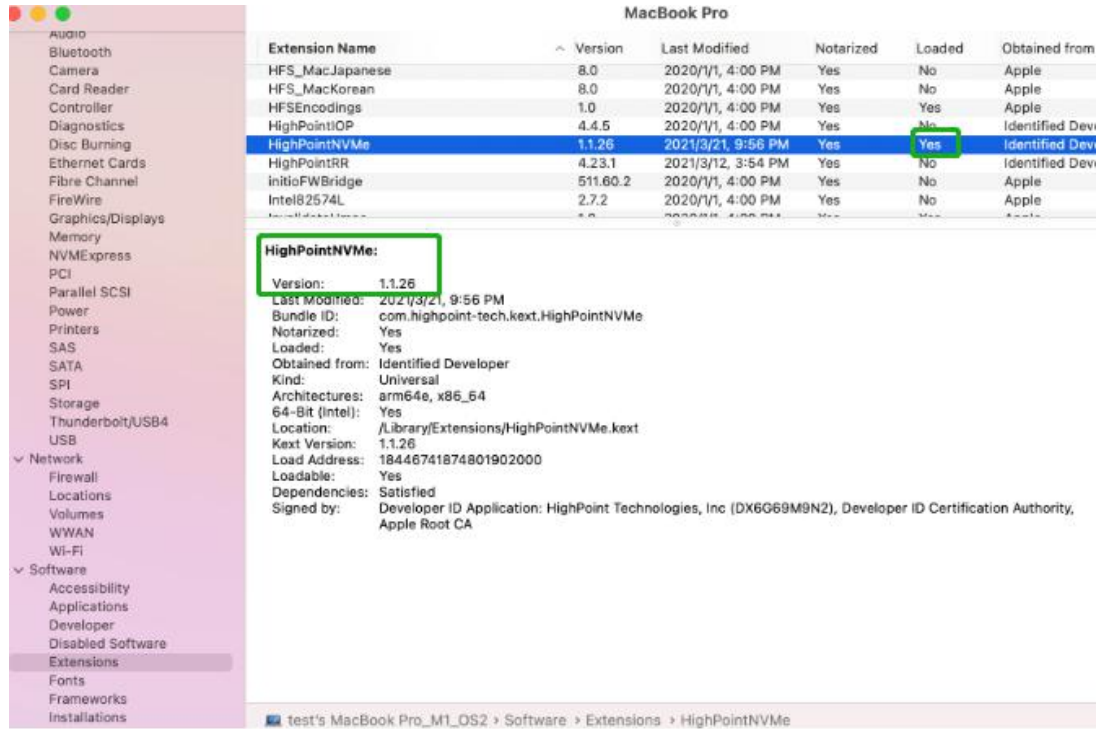
10) You will receive a popup window, prompting you to restart. Click **Not Now**.



11) Return to the driver installation window. Click **Restart** to restart the system.



12) After the system restarts, the driver's status can be viewed under **System Information** → **Extensions**; The following screenshot shows the **HighPointNVMe** driver has been loaded:



4. Updating the Device Driver

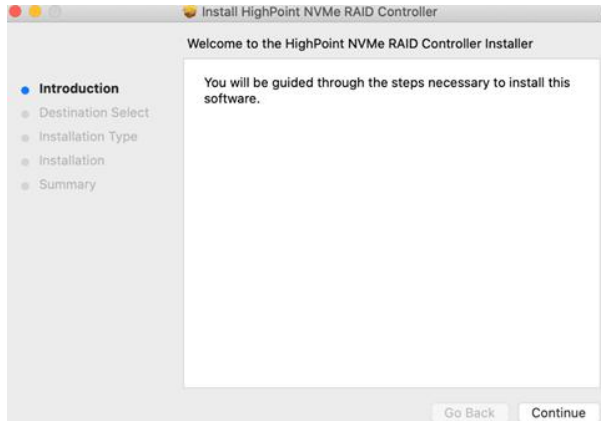
Note: Update the driver, please make sure the RAID controller is connected to the host.

Current drivers can be downloaded from each product's **Software Downloads** webpage.

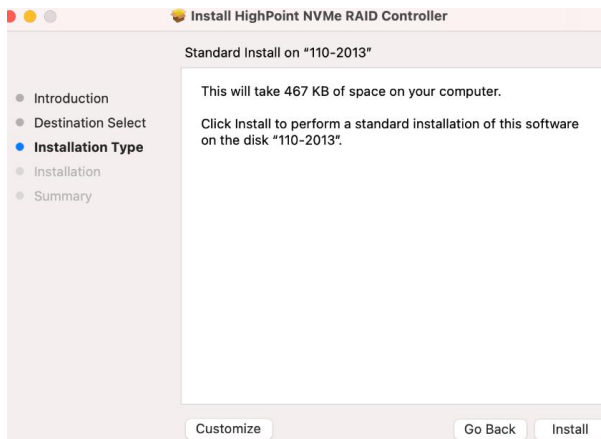
| Product | Download Page |
|--------------|---|
| SSD7101A-1 | https://www.highpoint-tech.com/USA_new/series-ssd7101a-1-download.htm |
| SSD7120 | https://highpoint-tech.com/USA_new/series-ssd7120-download.htm |
| SSD7204 | https://highpoint-tech.com/USA_new/series-ssd7204-download.htm |
| SSD7104 | https://highpoint-tech.com/USA_new/series-ssd7104-download.htm |
| SSD6540M | https://highpoint-tech.com/USA_new/series-ssd6540m-download.htm |
| SSD6540 | https://highpoint-tech.com/USA_new/series-ssd6540-download.htm |
| SSD7103 | https://highpoint-tech.com/USA_new/series-ssd7103-download.htm |
| SSD7140 | https://highpoint-tech.com/USA_new/series-ssd7140-download.htm |
| RS6661A-NVMe | https://highpoint-tech.com/USA_new/series-rs6661a-nvme-download.htm |
| SSD7505 | https://highpoint-tech.com/USA_new/series-ssd7500-download.htm |
| SSD7502 | https://www.highpoint-tech.com/USA_new/series-ssd7502-overview.html |
| SSD7540 | https://highpoint-tech.com/USA_new/series-ssd7500-download.htm |

Updating the Device Driver (for macOS11.0)

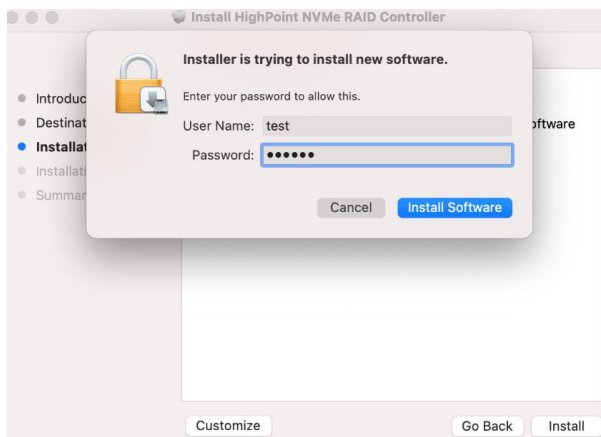
- 1) Locate the download and double click the **HighPointNVMe.pkg** package to start the installer. Click the **Continue** button:



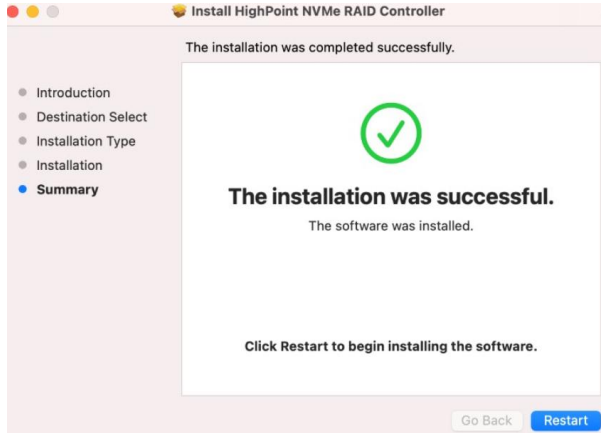
2) macOS will prompt you to install the driver. Click **Install** to proceed.



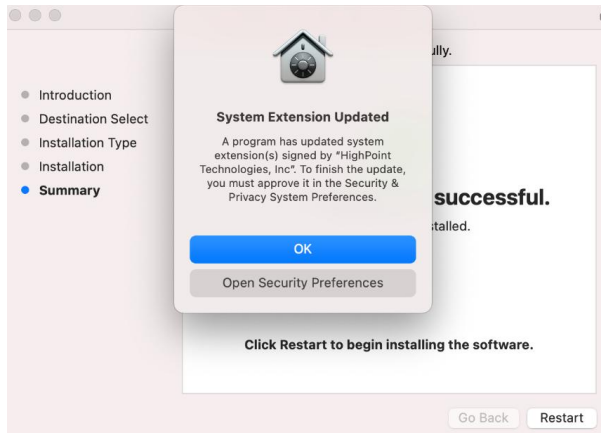
3) You will be prompted that installer is trying to install new software, enter the *Administrator* Username and Password. Once these have been entered, Click **Install Software**.



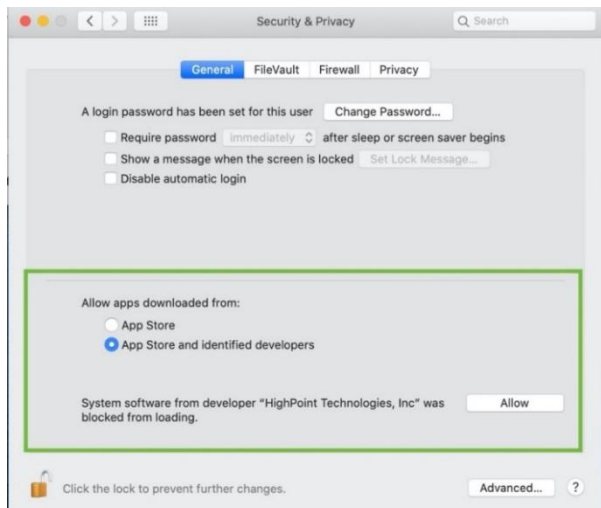
4) If no pop-ups appear, please proceed to the next step of installation. Click **Restart**.



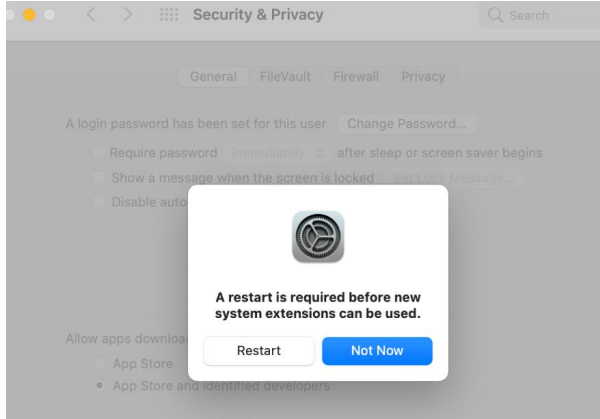
- 5) If you receive a popup window prompting you for permission, click **Open Security Preferences**.



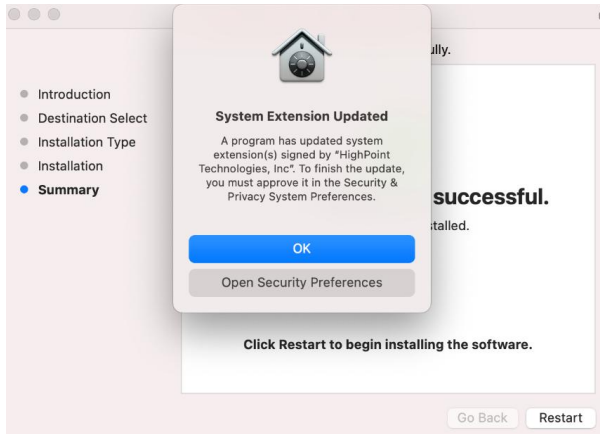
- 6) Make sure **App Store and identified developers** is checked, and then click **Allow**.



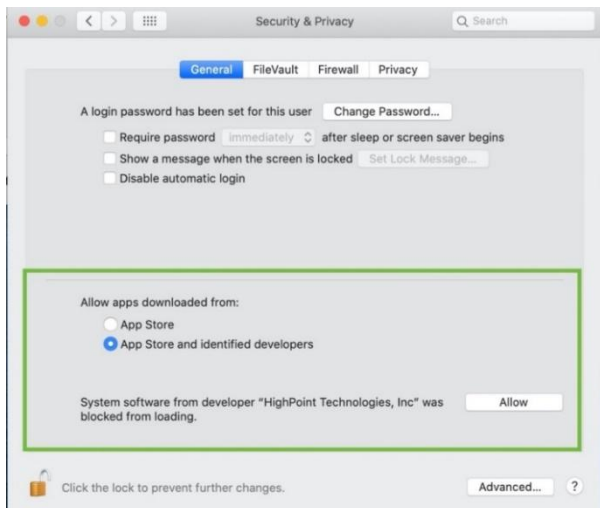
- 7) You will receive a popup window, prompting you to restart. Click **Not Now**.



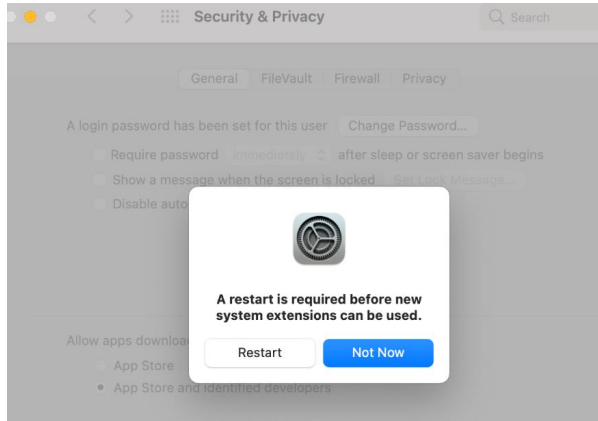
8) If you receive the permission prompt for the second time, click "**Open Security Preferences**" again.



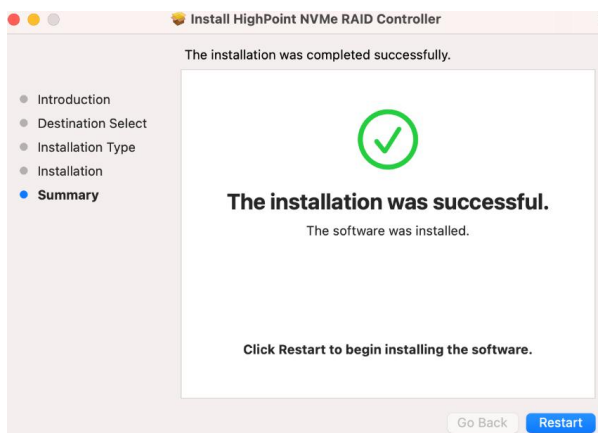
9) Make sure **App Store and identified developers** is checked, and then click **Allow**.



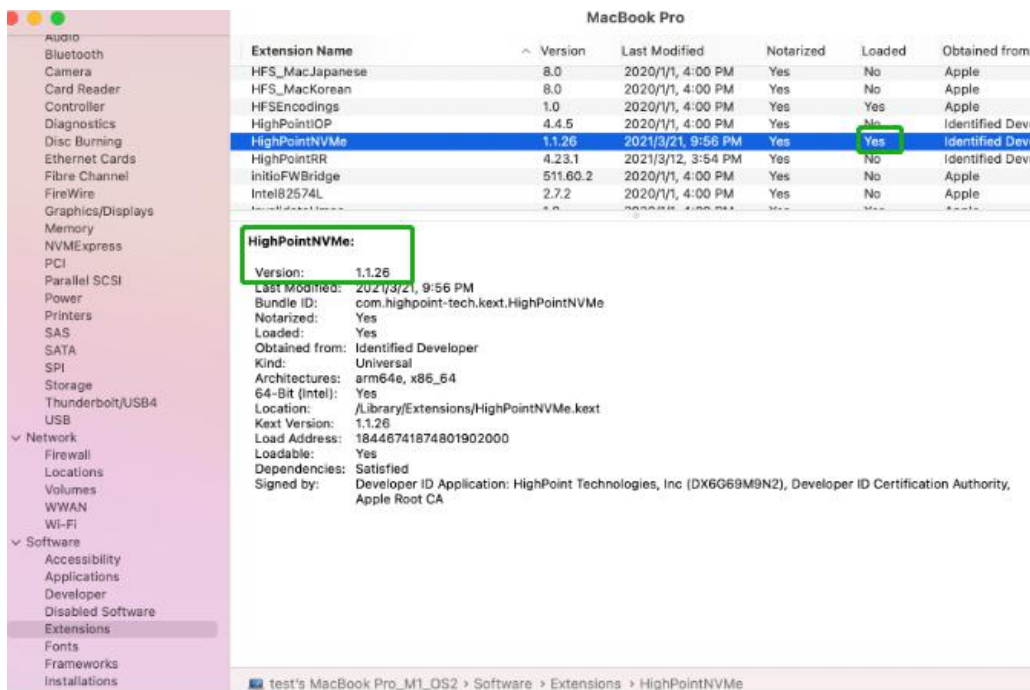
10) You will receive a popup window, prompting you to restart. Click **Not Now**.



11) Return to the driver installation window. Click **Restart** to restart the system.



12) After the system restarts, the driver's status can be viewed under **System Information** → **Extensions**; The following screenshot shows the **HighPointNVMe** driver has been loaded:



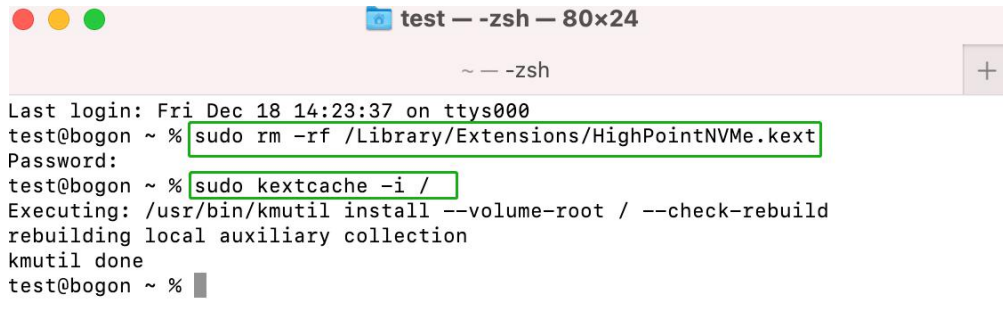
5. Uninstalling the Device Driver

Uninstalling the Device Driver for macOS11.0

To uninstall the NVMe driver, you will need to open a Terminal window and enter the following command:

```
sudo rm -rf /Library/Extensions/HighPointNVMe.kext
```

```
sudo kextcache -i /
```

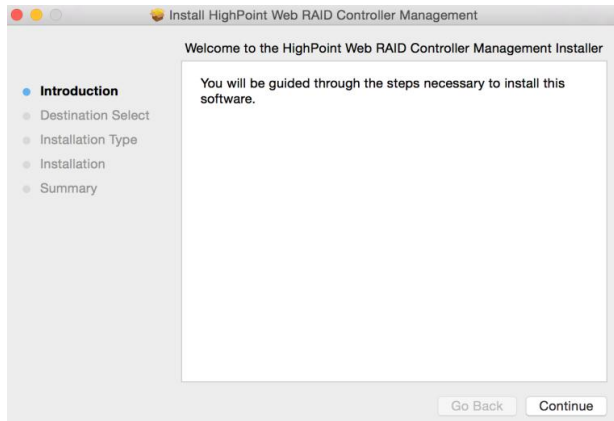


```
test -- -zsh -- 80x24
~ -- -zsh
Last login: Fri Dec 18 14:23:37 on ttys000
test@bogon ~ % sudo rm -rf /Library/Extensions/HighPointNVMe.kext
Password:
test@bogon ~ % sudo kextcache -i /
Executing: /usr/bin/kmutil install --volume-root / --check-rebuild
rebuilding local auxiliary collection
kmutil done
test@bogon ~ %
```

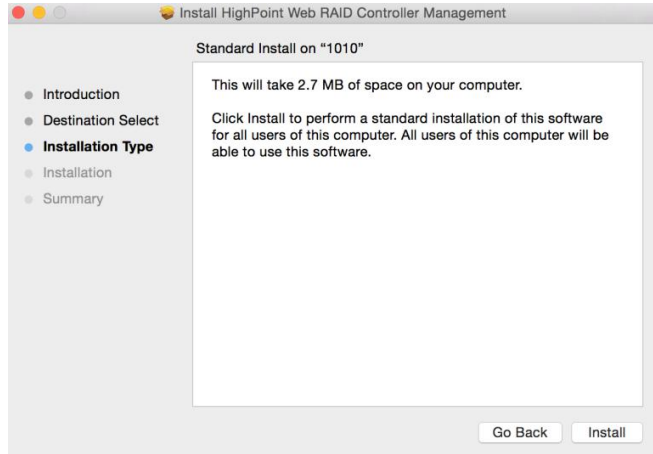
6. Installing the RAID Management Software (WebGUI)

Installing the WebGUI for macOS11.0

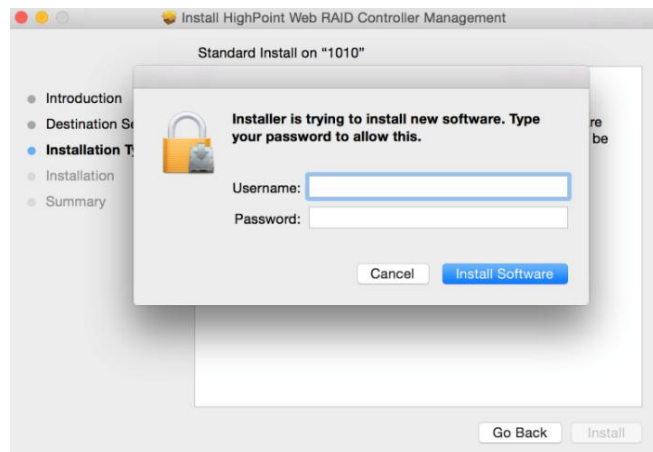
- 1) Double click the package named **HighPointWebGUI.pkg** to start the installer. When the window appears, click the **Continue** button.



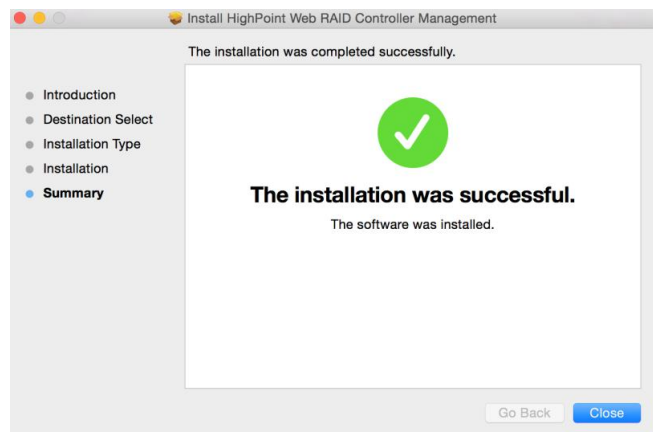
- 2) You will be promoted to click the **Install** button. Click **Install** to continue.



- 3) You will then be promoted to enter the *Administrator* Username and Password. Once these have been entered, click **Install Software** to continue.



- 4) The WebGUI Management software has been installed. Click **Close** to complete the procedure.

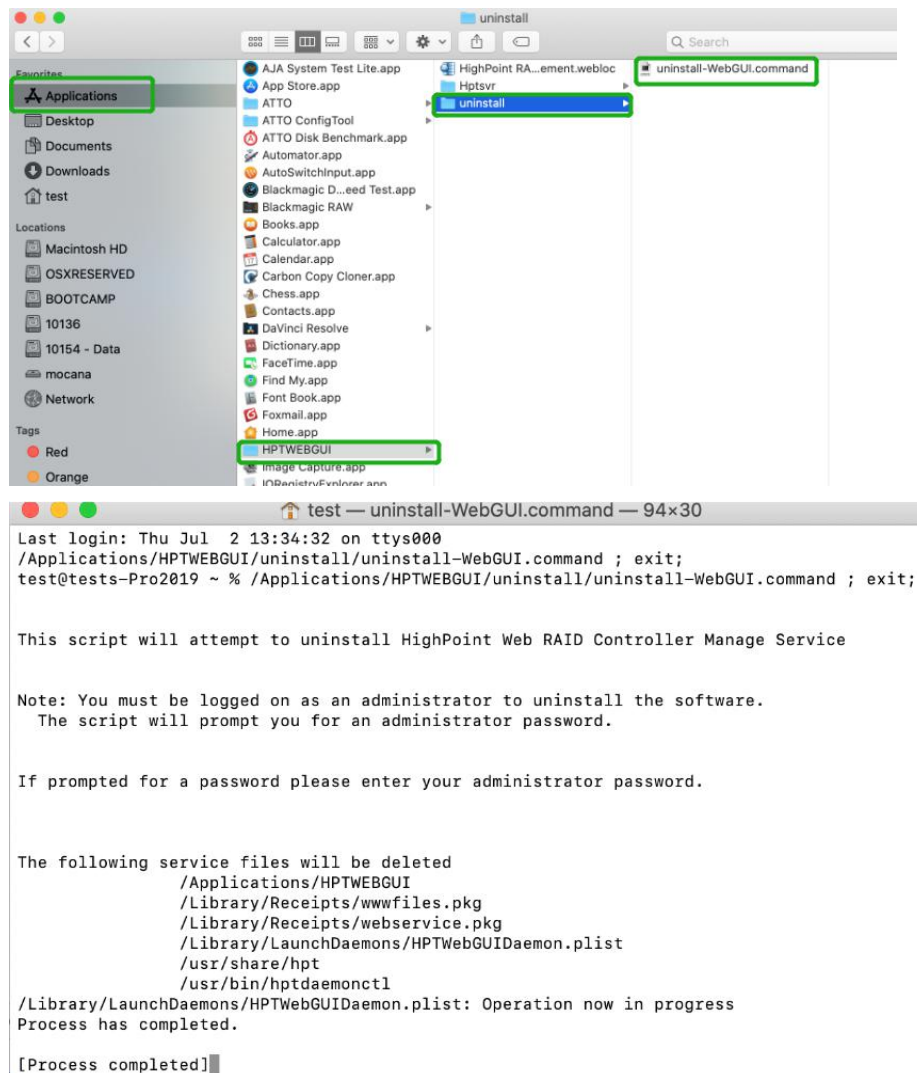


7. Updating the WebGUI for macOS11.0

- 1) First, uninstall the current WebGUI. Please refer to [Uninstalling the WebGUI](#).
- 2) Once the system has rebooted, download the latest version of the WebGUI from the appropriate Software Downloads webpage.
- 3) Locate the download and double click the package named **HighPointWebGUI.pkg** to start the installer. Please refer to Installing the [WebGUI for macOS11.0](#) for more information.

8. Uninstalling the WebGUI for macOS11.0

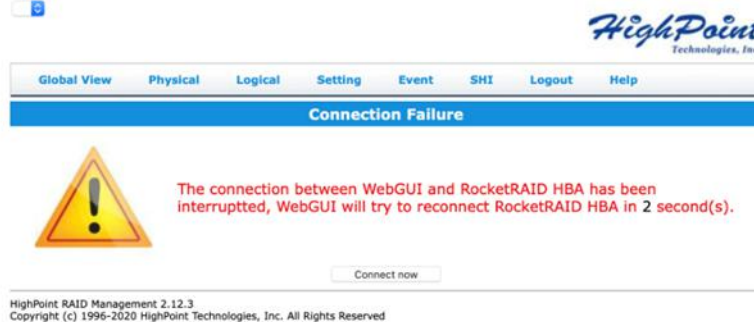
To uninstall the WebGUI, access Applications, click on **HPTWEBGUI**, select uninstall, and double-click the **uninstall-WebGUI.command**. The uninstall command will automatically open a terminal and uninstall the software:



9. Trouble shooting

Unable to connect to the WebGUI

After the driver and management software are installed, the management software displays a "Connection Failure" warning when attempting to start the



interface:

This error can be triggered by one of the following issues:

01. The HighPoint NVMe hardware is not recognized by macOS
02. The HighPoint NVMe device driver is not installed or is not loading properly.
03. WEBGUI service is not running.
04. The system's SIP status is incorrect.
05. If you are using a T2 system, Secure Boot may not be 'Disabled'.
06. If you are using Apple M1 system, Security Policy may not be 'Reduced'.

01. Verifying the HighPoint NVMe hardware

Please refer to the [Appendix – Verifying Product Installation](#) to make sure the HighPoint NVMe device is properly recognized by macOS.

Note: If you are using the RocketStor 6661A-NVMe:

- 1) If you are using the RocketStor 6661A-NVMe (RS6661A-NVMe), or another SSD7000 series controller via our RocketStor 6661A adapter and a Thunderbolt™ 3 connection, refer to the [first screenshot](#) displayed under - **Appendix – Verifying Product Installation**. If the RS6661A entry is present, proceed to screenshot #2.
- 2) If the RocketStor 6661A entry is not displayed, this may be related to a connection problem – move the RS6661A to another Thunderbolt™ 3 port or replace the cable and recheck the entry.

02. Make sure the HighPoint NVMe Driver is loaded

Please refer to the [Appendix - Checking the Driver status and Version](#) to make sure the HighPoint NVMe driver is installed properly.

- 1) If the HighPoint NVMe driver is not loading, proceed to step 2 – [Check the security & privacy status](#). If HighPoint software is blocked in the permission, you need to click Allow.
- 2) If the driver is loading properly, but the WebGUI is still unable to start, please try to restart the WEBGUI service. Please refer to [Appendix - WEBGUI service restart](#) make settings.

- 3) If WEBGUI is still not connected, please contact our [Support Department](#) to open a support ticket. Please make sure to include any screenshots and system information you are able to collect (see the Appendix for more information).

03. Check the SIP status

- 1) Please refer to the [Appendix - Checking the SIP Status](#) .
- 2) If the settings are not correct for your system, please refer to the driver installation manual for each system to reset the SIP status.

04. For T2 Systems: Make sure Secure Boot is disabled

- 1) Please refer to the [Disabling Secure Boot](#). If the setting is incorrect, you will need to reboot the system to change the setting.

05. For Apple M1 Platform: Make sure Security Policy is reduced

- 1) Please refer to the [Reduced Security Policy](#) . If the setting is incorrect, you will need to shutdown the system to change the setting.

If you encounter any problems while checking items 1-6, please refer to the [Appendix](#) to collect information about your system and configuration, and submit a support ticket to our Customer Support department using our Online Support Portal: <https://www.highpoint-tech.com/websupport/main.php>

The WebGUI can't connect to a remote system

If you can't connect to a remote system, make sure **raidman-httpsd** is running on the target system, and confirm that you can access the remote system via a TCP/IP connection. If you have a firewall configured, make sure TCP port 7402 is not blocked.

Appendix

When submitting a support ticket via our Online Support Portal, the following information will help our Support Department diagnose and resolve your issue as quickly and efficiently as possible.

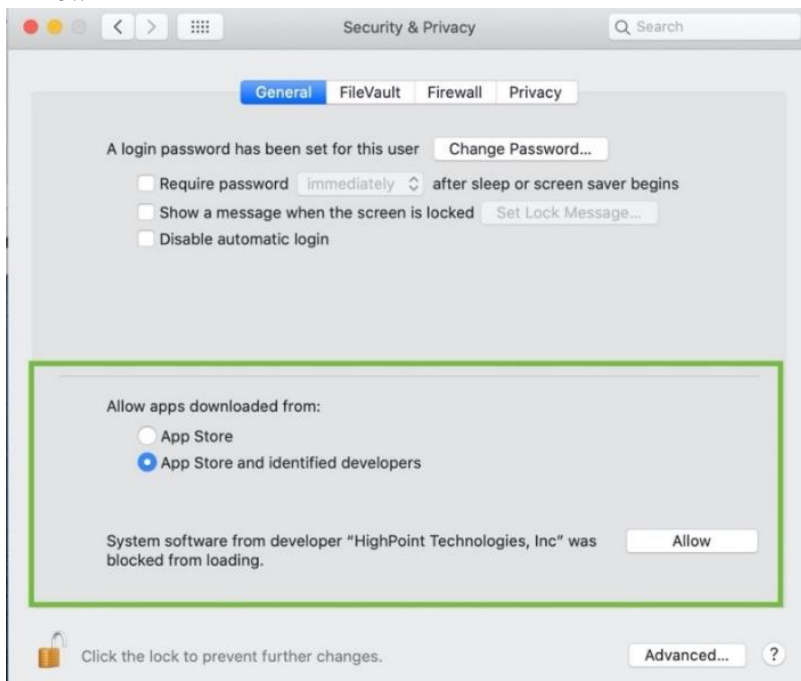
Collecting the macOS version

- 1) Click on the Apple logo located near the upper left-hand portion of the Desktop, and click “Version”. Then the version number of the system will all be displayed.



Check the security & privacy

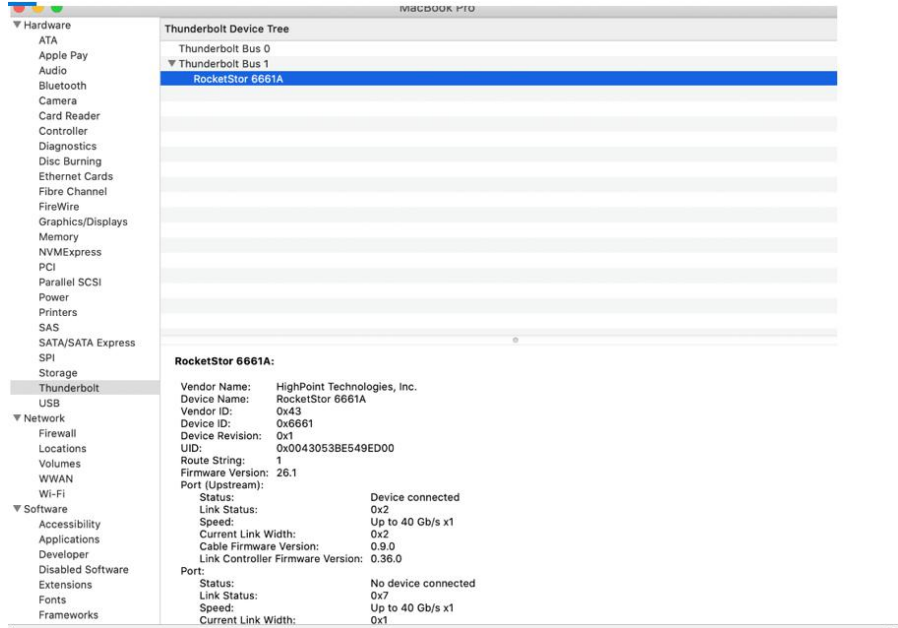
- 1) Check if there is HighPoint software blocked in the permission, if it is blocked, you need to click “Allow”.



Verifying Product Installation

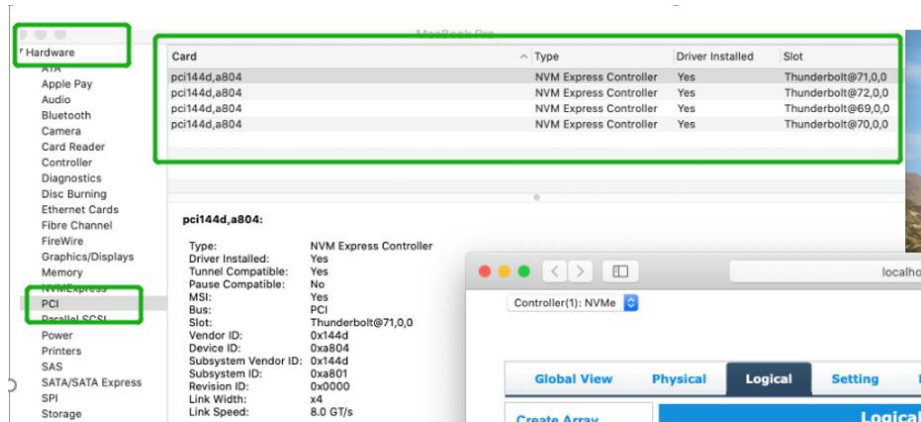
- 1) Click on the **Apple** logo located near the upper left-hand portion of the Desktop, and select “**About this Mac**”.

RocketStor 6661A-NVMe (Thunderbolt entry):



- 2) If you are using a SSD7000 series NVMe RAID controller, check under **Hardware, PCI**. Reference screenshots for each product are show below.

SSD7101A / 7104 / 7204 / 7120 / 6540 / 6540M or RS6661A-NVMe:



SSD7140:

| Card | Type | Driver Installed | Slot |
|---------------------|--------------------------------|------------------|---------------------|
| AMD Radeon Pro 580X | Display Controller | Yes | Slot-1@7,0,0 |
| pci10b5,87d0 | Unknown | No | Slot-3@17,0,1 |
| pci10b5,87d0 | Unknown | No | Slot-3@17,0,2 |
| pci10b5,87d0 | Unknown | No | Slot-3@17,0,3 |
| pci10b5,87d0 | Unknown | No | Slot-3@17,0,0 |
| pci15b7,5002 | NVM Express Controller | Yes | Slot-3@26,0,0 |
| pci15b7,5003 | NVM Express Controller | Yes | Slot-3@21,0,0 |
| pci15b7,5003 | NVM Express Controller | Yes | Slot-3@20,0,0 |
| pci15b7,5003 | NVM Express Controller | Yes | Slot-3@24,0,0 |
| pci126f,2262 | NVM Express Controller | Yes | Slot-3@22,0,0 |
| pci144d,a808 | NVM Express Controller | Yes | Slot-3@19,0,0 |
| pci144d,a808 | NVM Express Controller | Yes | Slot-3@23,0,0 |
| pci1002,aa10 | Audio Device | Yes | Slot-1@7,0,1 |
| pci1179,11a | NVM Express Controller | Yes | Slot-3@25,0,0 |
| pci8086,15eb | Thunderbolt Controller | Yes | Thunderbolt@146,0,0 |
| XHC4 | USB eXtensible Host Controller | Yes | Thunderbolt@145,0,0 |

AMD Radeon Pro 580X:

Name: ATY,Forrahue
 Type: Display Controller
 Driver Installed: Yes
 MSI: Yes
 Bus: PCI
 Slot: Slot-1@7,0,0
 Vendor ID: 0x1002
 Device ID: 0x67df
 Subsystem Vendor ID: 0x106b
 Subsystem ID: 0x0206
 Revision ID: 0x00c0
 Link Width: x16
 Link Speed: 8.0 GT/s

SSD7103:

| Card | Type | Driver Installed | Slot |
|--------------|------------------------|------------------|---------------------|
| pci144d,a808 | NVM Express Controller | Yes | Thunderbolt@130,0,0 |
| pci144d,a808 | NVM Express Controller | Yes | Thunderbolt@131,0,0 |
| pci144d,a808 | NVM Express Controller | Yes | Thunderbolt@138,0,0 |
| pci144d,a808 | NVM Express Controller | Yes | Thunderbolt@136,0,0 |
| pci1103,7103 | RAID Controller | No | Thunderbolt@137,0,0 |

pci144d,a808:

Type: NVM Express Controller
 Driver Installed: Yes
 Tunnel Compatible: Yes
 Pause Compatible: Yes
 MSI: Yes
 Bus: PCI
 Slot: Thunderbolt@130,0,0
 Vendor ID: 0x144d

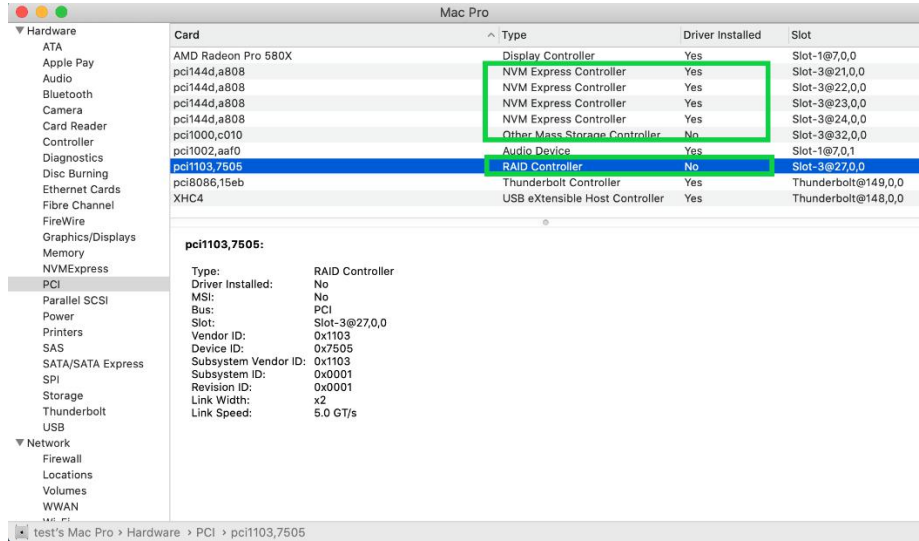
SSD7110:

| Card | Type | Driver Installed | Slot |
|--------------|------------------------|------------------|---------------------|
| pci144d,a804 | NVM Express Controller | Yes | Thunderbolt@135,0,0 |
| pci144d,a804 | NVM Express Controller | Yes | Thunderbolt@132,0,0 |
| pci144d,a808 | NVM Express Controller | Yes | Thunderbolt@134,0,0 |
| pci1103,7110 | RAID Controller | No | Thunderbolt@133,0,0 |

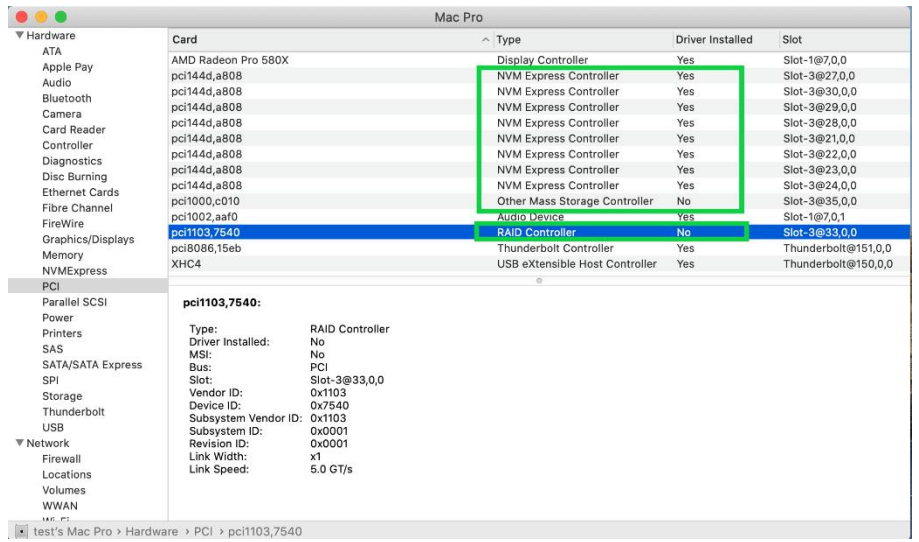
pci144d,a804:

Type: NVM Express Controller
 Driver Installed: Yes
 Tunnel Compatible: Yes
 Pause Compatible: Yes
 MSI: Yes
 Bus: PCI
 Slot: Thunderbolt@135,0,0
 Vendor ID: 0x144d

SSD7505:



SSD7540:



WEBGUI Screenshots

Please take screenshots of WEBGUI each Tab (such as **Physical, Logical, Event**, etc.) and upload these to your support case. In addition, check the Event log tab and save a copy of the current log – please upload this to the support case.

WEBGUI service restart

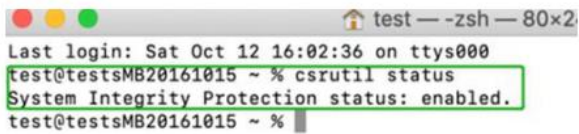
If you can't connect to the WebGUI, please check if a process named raidman-httpsd is running on the system. If it is not running, you can start it manually by opening a terminal window and running the command: **“sudo hptdaemonctl restart”**.

Checking the SIP Status

Open a Terminal window and enter the following command:

csrutil status

Please take a screenshot of the output, and attach it to a support case (see example below):



```

test@testsMB20161015 ~ % csrutil status
System Integrity Protection status: enabled.
test@testsMB20161015 ~ %

```

The status will vary depending on which version of macOS you are using:

| MacOS Version | SIP Status | Driver Status |
|---------------|------------|---------------|
| 11.x | Enable | Loaded |

Systems with T2 chipsets – Secure Boot status

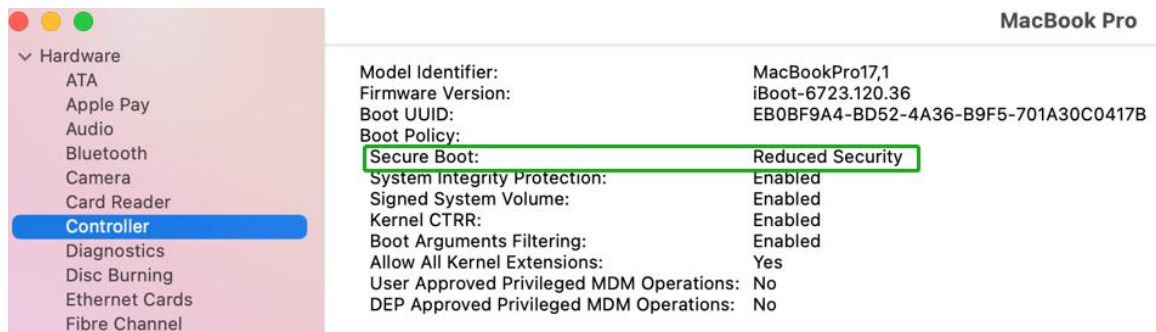
You will need reboot the system and enter Recovery Mode to check the Secure Boot status. This setting should remain disabled.

Please refer to: [Disabling Secure Boot](#)

Apple M1 Platform – Reduced security policy

Check if Secure Boot is Reduced Security

System Information -> Hardware -> Controller -> Boot Policy

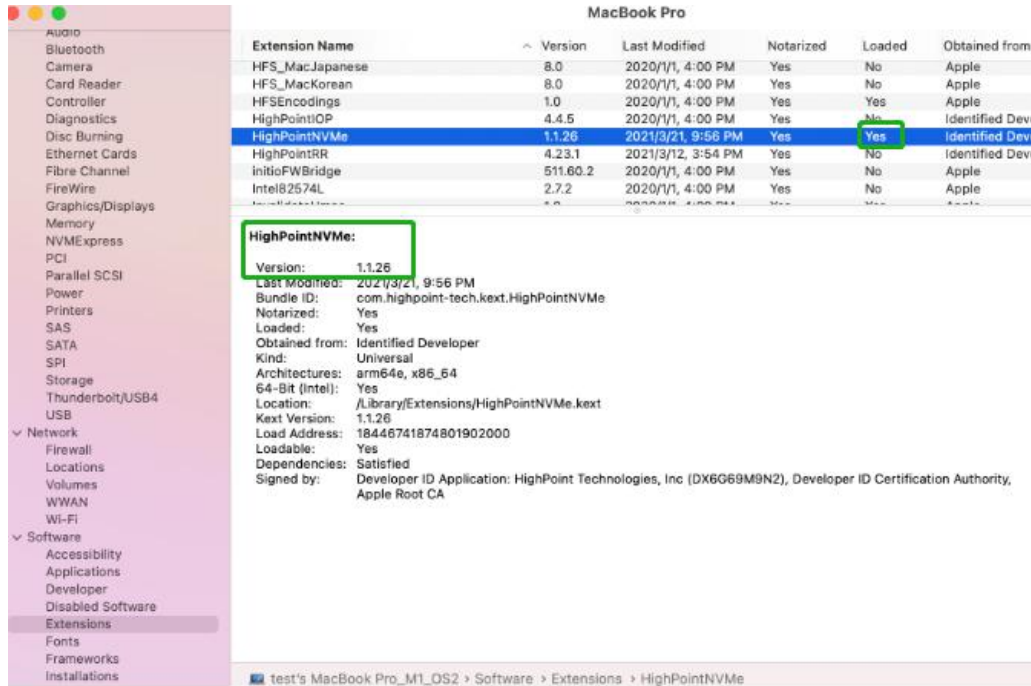


Secure Boot must be **reduced Security** in order to load drivers for third party devices, if change please refer to: [Reduced Security Policy](#)

Checking the Driver status and Version

- 1) Click on the **Apple** logo located near the upper left-hand portion of the Desktop, and select “**About this Mac**”.
- 2) Click on **Extensions**, and then click on **HighPoint NVMe** entry – please take a screenshot and attach it this support case (see the example below):

System Information→Software→Extensions→HighPointNVMe

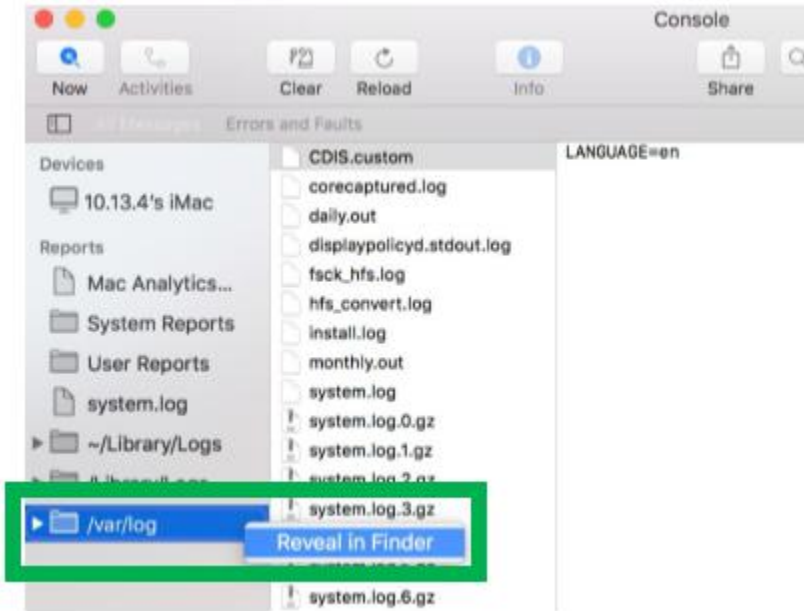


How to Collect System Logs

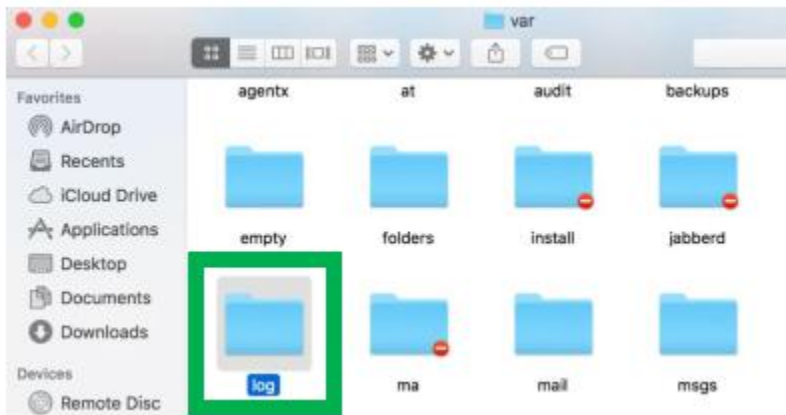
- 1) Please attach a copy of the /var/log folder to your support ticket.
To locate the /var/log Folder: 1. Go to **Applications** → **Utilities** → **Console**:



- 2) On the left side of the Console application, right-click on the /var/log folder and select Reveal in Finder:



- 3) You should then be automatically directed to the log folder in the var directory. Please remember when sending the folder to zip file, you should first direct it to a separate location (such as the desktop).

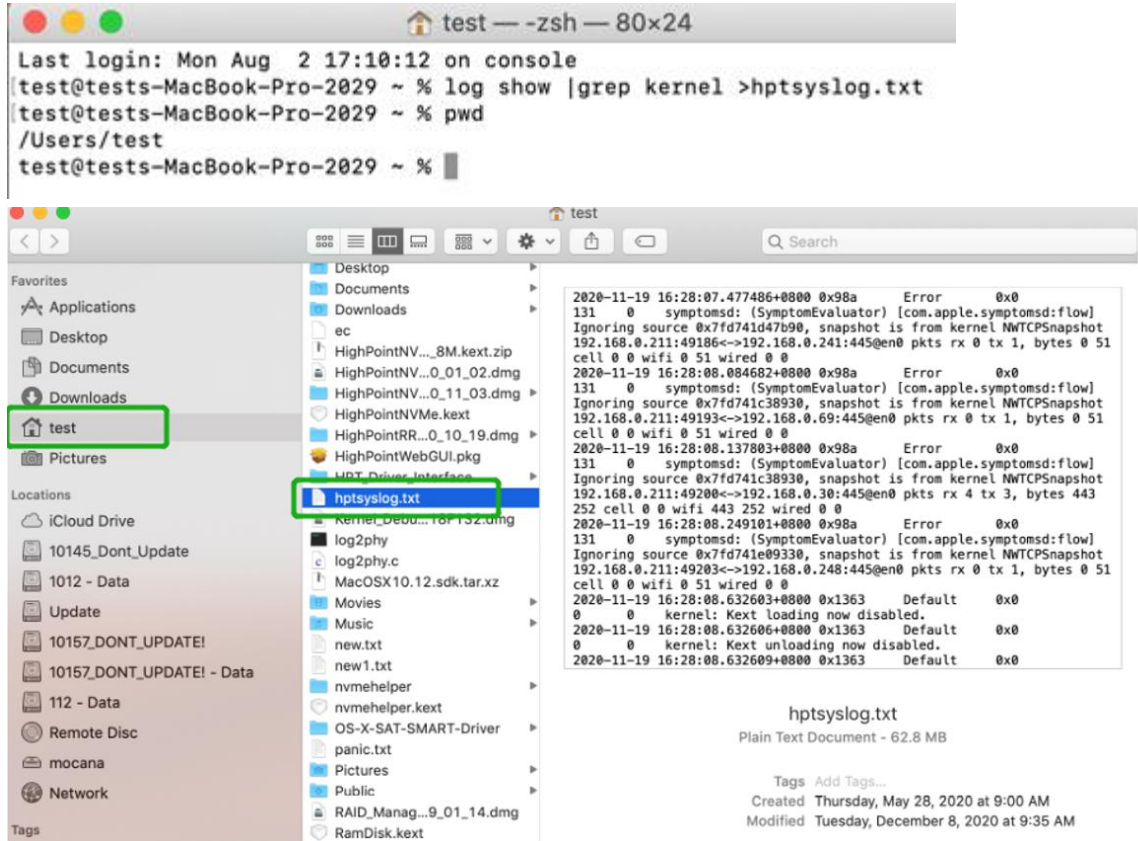


- 4) In addition to /var/log Folder detailed above, please attach a copy of the errlog.txt file:
- a. Open terminal and type the following, then press Enter:


```
log show |grep kernel > hptsyslog.txt
```

Note:
It takes about 5-10 minutes to respond after this command is entered, please don't worry, this is because your log file is relatively large, so it takes a lot of time.
 - b. Enter the following command to view the path where the log is stored.


```
pwd
```



5) Please attach the hptsyslog.txt to your support ticket.