# SSD7000 Series NVMe RAID Solutions Mac Installation Guide (Data RAID)

Device Driver & Management Software

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# 1. Overview

This guide includes important hardware/software requirements, installation & upgrade procedures, and troubleshooting tips for using SSD7101A-1, SSD7120 and SSD7204 NVMe RAID controllers, the RocketStor 6661A-NVMe Thunderbolt<sup>TM</sup> 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.

### **Installing the Device Driver**

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

### **Installing the RAID Management Software**

This section covers installation of the WebGUI management software, including upgrading and uninstalling 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.

# 1. Prerequisites

- 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/SSD7120/SSD6540/SSD6540M NVMe device must 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<sup>TM</sup> 3 port.
- 3) Operating System Support: macOS 10.13 or later
- 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 3 before attempting to install any software for the HighPoint NVMe device.

# 2. Apple T2 security Chip-Disable Secure boot

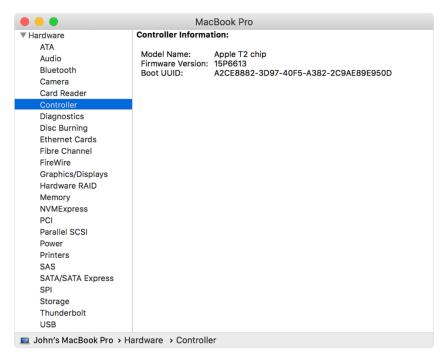
Secure Boot must be disabled on the following products:

Learn more About the Apple T2 Security Chip: https://support.apple.com/en-us/HT208862

- iMac Pro
- Mac Pro introduced in 2019
- Mac mini introduced in 2018
- MacBook Air introduced in 2018 or later
- MacBook Pro introduced in 2018 or later

You can also use **System Information** to learn whether your Mac has this chip:

- 1. Press and hold the Option key while choosing Apple  $(\Box)$  menu > System Information.
- In the sidebar, select either Controller or iBridge, depending on the version of macOS in use.
- 3. If you see "Apple T2 chip" on the right, your Mac has the Apple T2 Security Chip.

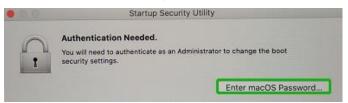


### **Disabling Secure Boot**

- 1) Restart the computer and then press the **Command** + **R** keys simultaneously. Keep holding the keys down until the Apple Logo appears.
- 2) When the menu bar says: "macOS Utilities", you have booted into Recovery mode. Launch the Startup Security Utility application by selecting it from the Utilities menu.



3) A dialog box will appear, telling you that you will need to authenticate as an Administrator to make changes, click **the Enter macOS Password...** button.



4) When the Startup Security Utility window appears, select **No Security** under the Secure Boot options.



5) Select **Restart** from the Apple menu to restart your Mac, and wait for your normal Desktop to appear.

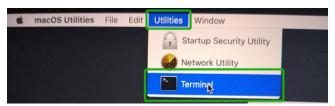
# 2. Installing the Device Driver

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		
SSD6540M	https://highpoint-tech.com/USA new/series-ssd6540m-download.htm		
SSD6540	https://highpoint-tech.com/USA new/series-ssd6540-download.htm		
RS6661A-NVMe	https://highpoint-tech.com/USA_new/series-rs6661a-nvme-download.htm		

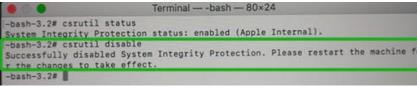
# macOS High Sierra 10.13 Driver Installation Procedure

1) Restart the computer and then press the **Command** + **R** keys simultaneously. Keep holding the keys down until the Apple logo appears. Click on **Utilities** in the upper left corner and select **Terminal**.

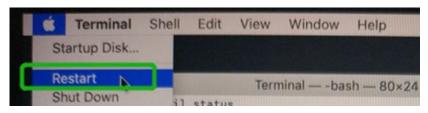


2) Open a Terminal window and enter the following command:

### csrutil disable



3) Select Restart from the Apple menu to restart your Mac, and wait for your normal Desktop to appear.

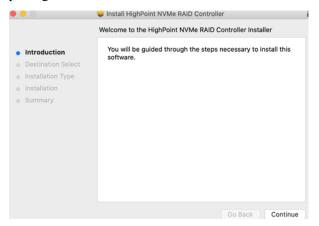


4) After rebooting, confirm that SIP is in the disabled state. Open terminal and type the following command:

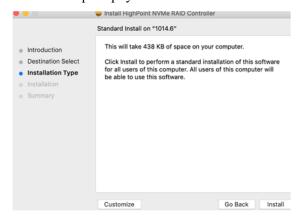
### csrutil status

```
Last login: Sat Oct 12 17:18:44 on console [test@testsMB20161015 ~ % csrutil status System Integrity Protection status: disabled. test@testsMB20161015 ~ %
```

1) Next, start the driver installation procedure. Locate the download and double click the package to start the installer. Click the **Continue** button:



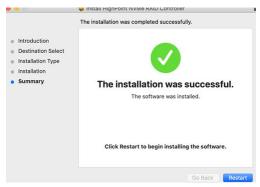
2) macOS will prompt you to install the driver. Click Install to proceed.



3) You will be prompted that a reboot is needed to install the software. Click **Continue Installation**.



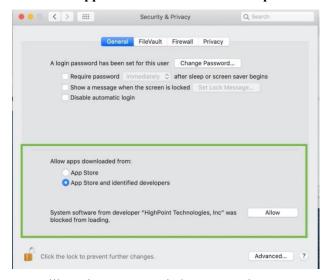
4) If no pop-ups appear, please proceed to the next step of installation. Click **Restart**.



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



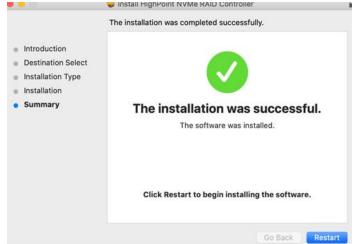
6) Make sure App Store and identified developers is checked, and then click Allow.



7) You will receive a popup window, prompting you to restart. Click **OK**.



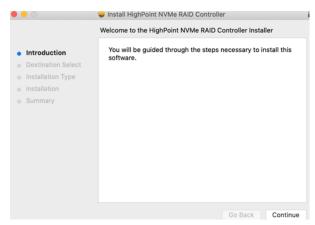
8) Return to the driver installation window. Click **Restart** to restart the system.



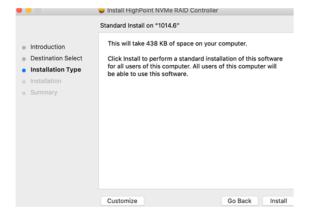
9) After restarting the system, install HighPoint RAID management.

# macOS Mojave10.14 and macOS Catalina 10.15 Driver Installation Procedure

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



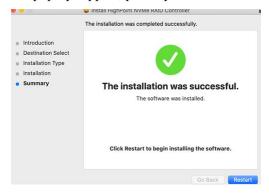
2) macOS will prompt you to install the driver. Click Install to proceed.



3) You will be prompted that a reboot is needed to install the software. Click **Continue Installation**.



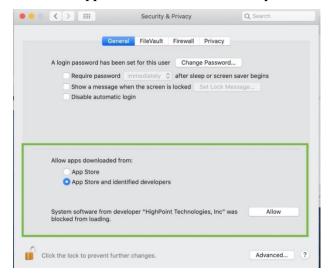
4) If no pop-ups appear, please proceed to the next step of installation. Click **Restart**.



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



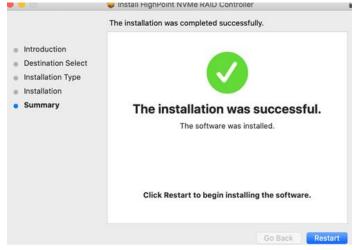
6) Make sure App Store and identified developers is checked, and then click Allow.



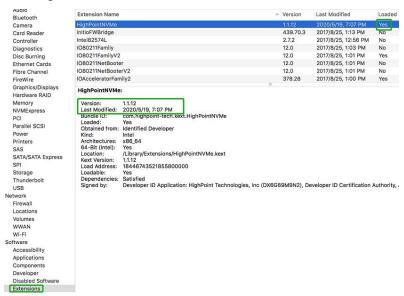
7) You will receive a popup window, prompting you to restart. Click **OK**.



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



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



# 3. Updating the Device Driver

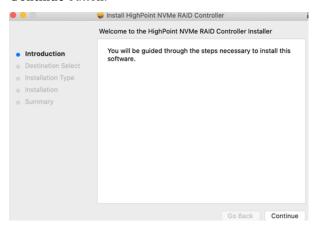
Note: Update the driver, please make sure the RAID controller is connected to the host.

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

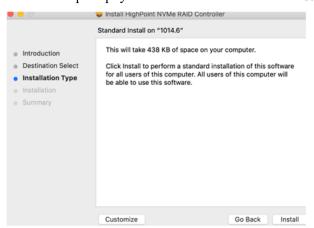
Product	Download Page
SSD7101A-1	https://www.highpoint-tech.com/USA_new/series-ssd7101a-1-
	<u>download.htm</u>
SSD7120	https://highpoint-tech.com/USA new/series-ssd7120-download.htm
SSD7204	https://highpoint-tech.com/USA new/series-ssd7204-download.htm
SSD6540M	https://highpoint-tech.com/USA new/series-ssd6540m-download.htm
SSD6540	https://highpoint-tech.com/USA new/series-ssd6540-download.htm
RS6661A-NVMe	https://highpoint-tech.com/USA new/series-rs6661a-nvme-download.htm

### **Updating the Device Driver (for macOS 10.13/10.14/10.15)**

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



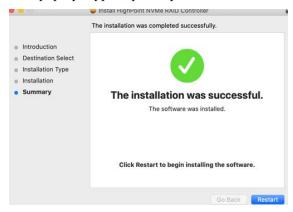
2) macOS will prompt you to install the driver. Click Install to proceed.



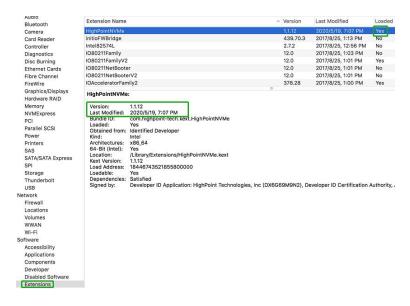
3) You will be prompted that a reboot is needed to install the software. Click **Continue Installation**.



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



5) After the system restarts, the driver's status can be viewed under **System Information**; the screenshot below shows that the driver has loaded properly.



# 4. Uninstalling the Device Driver

### Uninstalling the Device driver for macOS 10.13 and 10.14

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

```
test — -zsh — 80×24

Last login: Fri Dec 20 19:34:31 on ttys004

test@testsMB01610152 ~ % sudo rm -rf /Library/Extensions/HighPointNVMe.kext

Password:
test@testsMB01610152 ~ %
```

# **Uninstalling the Device Driver for macOS 10.15**

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

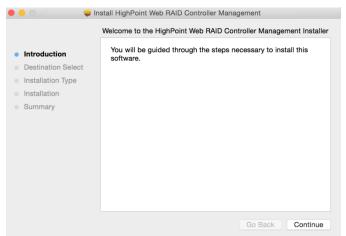
#### sudo kextcache –i /

```
[test@testsMB01610152 ~ % sudo rm -rf /Library/Extensions/HighPointNVMe.kext
[Password:
[test@testsMB01610152 ~ % sudo kextcache -i /
kextcache -i /
kextcache -arch x86_64 -local-root -all-loaded -kernel /System/Library/Kernels/k
ernel -prelinked-kernel /Library/Apple/System/Library/PrelinkedKernels/prelinked
kernel -volume-root / /Library/Extensions /AppleInternal/Library/Extensions /Lib
rary/Apple/System/Library/Extensions /System/Library/Extensions
KernelCache ID: 91AFAAB6216EDD61055A39A8E77A483C
test@testsMB01610152 ~ %
```

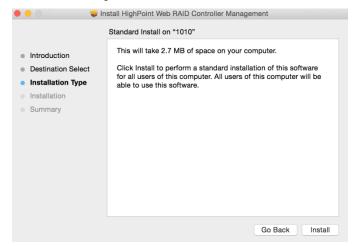
# 5. Installing the RAID Management Software (WebGUI)

# Installing the WebGUI for macOS 10.13/10.14/10.15

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



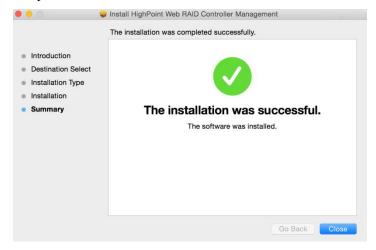
2) You will be promoted to click the Install button. Click Install to continue.



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.

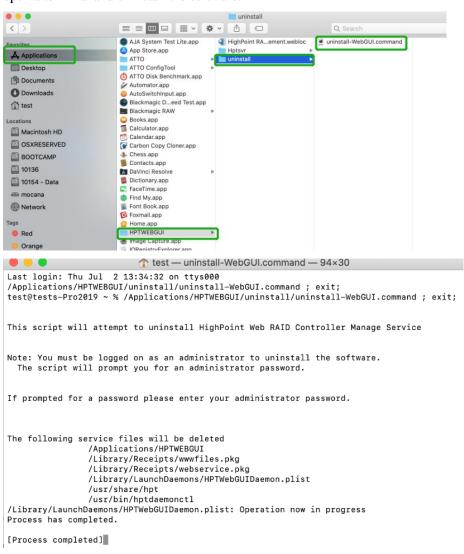


# 6. Updating the WEBGUI for macOS 10.13/10/14/10.15

- 1) First, uninstall the current WebGUI. Please refer to item 7 below (Uninstalling the WebGUI).
- 2) After uninstalling the WebGUI, reboot macOS.
- 3) Once the system has rebooted, download the latest version of the WebGUI from the appropriate Software Downloads webpage.
- 4) Locate the download and double click the package named **HighPointWebGUI.pkg** to start the installer. Please refer to Installing the <u>WebGUI for macOS 10.13/1014/10/15</u> for more information.

# 7. Uninstalling the WebGUI for macOS 10.13/10.14/10.15

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:



	Extension Name		^	Version	Last Modified	Loaded	
Bluetooth	HighPointNVMe		***	1.1.12	2020/5/19, 7:07 PM		
Camera				439.70.3		Yes	
Card Reader	initioFWBridge				2017/8/25, 1:13 PM		
Controller	Intel82574L			2.7.2	2017/8/25, 12:56 PM	No	
Diagnostics	IO80211Family			12.0	2017/8/25, 1:03 PM	No	
Disc Burning	IO80211FamilyV2			12.0	2017/8/25, 1:01 PM	Yes	
Ethernet Cards	IO80211NetBoote			12.0	2017/8/25, 1:01 PM	No	
Fibre Channel	IO80211NetBoote			12.0	2017/8/25, 1:01 PM	No	
FireWire	IOAcceleratorFam	nily2		378.28	2017/8/25, 1:00 PM	Yes	
Graphics/Displays	HighPointNVMe	•	0				
Hardware RAID	night-ollitavine;						
Memory	Version:	1.1.12					
NVMExpress	Last Modified:	2020/5/19, 7:07 PM					
PCI	Bundle ID:	com.highpoint-tech.kext.HighPointNVI	Me				
Parallel SCSI	Loaded:	Yes					
Power	Kind:	Identified Developer					
		Intel x86 64					
Printers		Intel x86_64 Yes					
Printers SAS	Architectures:	x86_64	xt				
Printers SAS SATA/SATA Express	Architectures: 64-Bit (Intel): Location: Kext Version:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12	xt				
Printers SAS SATA/SATA Express SPI	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000	xt				
Printers SAS SATA/SATA Express SPI Storage	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes	xt				
Printers SAS SATA/SATA Express SPI Storage Thunderbolt	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		59M9N2). D	eveloper ID Certification .	Authority	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes		9M9N2), De	eveloper ID Certification a	Authority,	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB Network	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		9M9N2), Do	eveloper ID Certification a	Authority,	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB Network Firewall	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		9M9N2), D	eveloper ID Certification .	Authority,	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB Network Firewall Locations	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		89M9N2), D	eveloper ID Certification .	Authority,	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB Network Firewall Locations Volumes	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		9M9N2), D	eveloper ID Certification /	Authority	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB Network Firewall Locations Volumes WWAN	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		59M9N2), D	eveloper ID Certification A	Authority,	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB Network Firewall Locations Volumes	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		9M9N2), Di	aveloper ID Certification .	Authority,	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB Network Firewall Locations Volumes WWAN	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		9M9N2), Di	eveloper ID Certification :	Authority,	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB Network Firewall Locations Volumes WWAN WI-Fi	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		9M9N2), Di	aveloper ID Certification .	Authority,	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB Network Firewall Locations Volumes WWAN WI-Fi Sottware	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		89M9N2), D4	eveloper ID Certification .	Authority	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB Network Firewall Locations Volumes WWAN Wi-Fi Software	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		9M9N2), Di	eveloper ID Certification $\mu$	Authority	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB Network Firewall Locations Volumes WWAN Wi-Fi Kottware Accessibility Applications	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		9M9N2), Di	eveloper ID Certification :	Authority,	
Printers SAS SATA/SATA Express SPI Storage Thunderbolt USB Network Firevall Locations Volumes WWAN Wi-Fi Software Accessibility Applications Components	Architectures: 64-Bit (Intel): Location: Kext Version: Load Address: Loadable: Dependencies:	x86_64 Yes /Library/Extensions/HighPointNVMe.ke 1.1.12 18446743521855800000 Yes Satisfied		89M9N2), D4	eveloper ID Certification A	Authority	

# 8. 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:

- 1. The HighPoint NVMe hardware is not recognized by macOS
- 2. The HighPoint NVMe device driver is not installed or is not loading properly
- 3. WEBGUI service is not running.
- 4. The system's SIP status is incorrect.
- 5. If you are using a T2 system; Secure Boot may not be disabled

#### 1. Verifying the HighPoint NVMe hardware

Please refer to the <u>Appendix – Verifying Product Installation</u> (page 23) to make sure the HighPoint NVMe device is properly recognized by macOS.

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

- 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 <u>first screenshot</u> 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<sup>TM</sup> 3 port or replace the cable and recheck the entry.

### 2. Make sure the HighPoint NVMe Driver is loaded

Please refer to the <u>Appendix - Checking the Driver status and Version</u> (page 24) to make sure the HighPoint NVMe driver is installed properly.

- 1. If the HighPoint NVMe driver is not loading, proceed to step 3 Check the SIP status.
- 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 <u>Appendix WEBGUI service restart</u> (Page 24) make settings.

If WEBGUI is still not connected, please contact our <u>Support Department</u> 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).

#### 3. Check the SIP status

1. Please refer to the **Appendix - Checking the SIP Status** (page 24).

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.

### 4. For T2 Systems: Make sure Secure Boot is disabled

Please refer to the <u>Appendix - Systems with T2 chipsets - Secure Boot status</u> (page 24). If the setting is incorrect, you will need to reboot the system to change the setting.

If you encounter any problems while checking items 1-4, please refer to the <u>Appendix</u> to collect information about your system and configuration, and submit a support ticket to our Customer Support department using our Online Support Portal: <a href="http://www.highpoint-tech.com/websupport/">http://www.highpoint-tech.com/websupport/</a>

# 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.

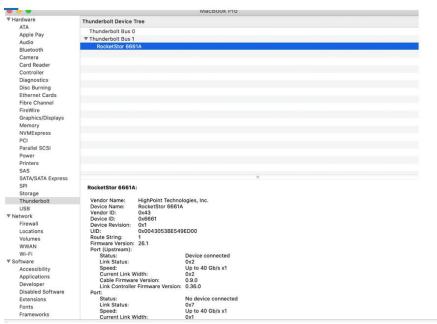
# Appendix

When submitting s 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.

### **Verifying Product Installation**

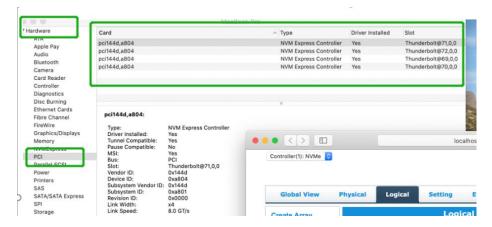
1) Click on the **Apple** logo located near the upper left-hand portion of the Desktop, and select "**About** this Mac".

RocketStor 6661A-NVMe (Thunderbolt entry):

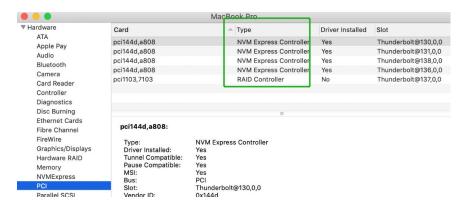


2) If you are using a SSD7000 series NVMe RAID controller, check under **Hardware**, **PCI**. Reference screenshots for each product are show below.

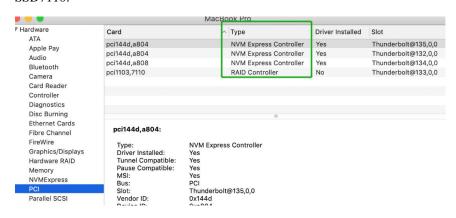
SSD7101A / 7104 / 7204 / 7120 /6540 /6540M, or RS661A-NVMe:



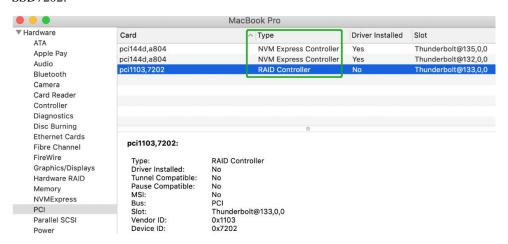
### SSD7103:



#### SSD7110:



#### SSD7202:



#### **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 — -zsh — 80×2.

Last login: Sat Oct 12 16:02:36 on ttys000

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
10.13.x	Disable	Loaded
10.14.x	Enable	Loaded
10.15.x	Enable	Loaded

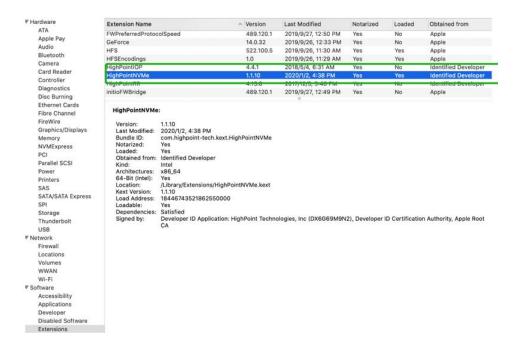
# Systems with T2 chipsets – Secure Boot status

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

### **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

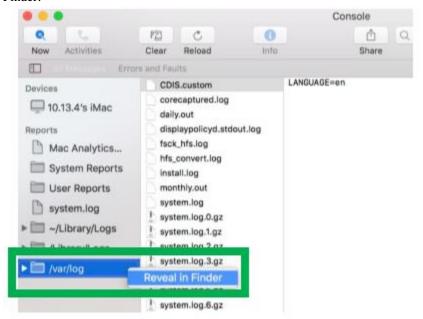


### **How to Collect System Logs**

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:

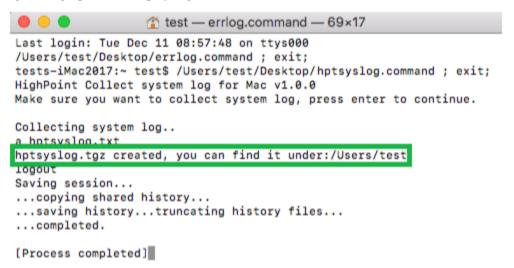


3) You should then be automatically directed to the log folder in the var directory. Please remember when sending the folder to zip file, you should first direct it to a separate location (such as the desktop).



- 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



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