# **Configure Boot with HW RAID on C-Series M6 Servers**

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### Introduction

This document describes the steps to configure Cisco Boot-optimized M.2 RAID controller on Standalone C-Series via Cisco Integrated Manager Controller.

Contributed by Sergio Mora, Ana Montenegro Cisco TAC Engineer.

### Prerequisites

Cisco recommends that you have knowledge of these topics:

- Cisco Integrated Management Controller (CIMC)
- RAID Configuration

### **Components Used**

The information in this document is based on these software and hardware versions:

- UCSC-C220-M6S
- CIMC Version: 4.2(1a)
- M.2 Drives
- UCS-M2-HWRAID
- PCIe Slot MSTOR-RAID
- Model: ATA
- Type: SSD
- ESXI 7.0 U2

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

### **Background Information**

On C220 M6 and C240 M6 servers, you have the option to use two SATA M.2 modules and configure them from CIMC as RAID 0 or 1 for Booting.

There are two types of controllers that can be chosen for M.2 modules, Noe Valley (UCS-M2-HWRAID) and Fort Point (UCS-MSTOR-M2).

#### Fort Point M.2 module

- SATA is GEN3 from PCH sSATA controller
- PCIe is GEN3 x2
- I2C OOB from Pilot4
- Cannot mix SATA and PCIe M.2 modules
- SATA, AHCI mode only

#### Noe Valley M.2 module

- SATA from RAID Controller
- Hardware RAID 0/1 support
- No PCIe M.2 support

### Configure

Verify the current physical and virtual drive information

- From the CIMC menu, select **Storage**, then select the **Cisco Boot optimized M.2 Raid controller** (**MSTOR-RAID**).
- Select Physical Drive Info.
- Verify drives are correctly read and health is Good.



Create Virtual Drive from Controller Info Tab

• Navigate to the option Create Virtual Drive from Unused Physical Drives.

🕈 / / Cisco Boot optimized M.2 Raid controller (MSTOR-RAID) / Controller Info ★									
Controller Info Physical Drive Info Virtual Drive Info									
Create Virtual Drive from Unused Physical Drives   I	mport Foreign Config   Clear Foreign Config								
▼ Health/Status		*	Running Firmware Images						
Composite Health:	Good		BIC						
Controller Status:	Optimal		Firmwa						
Operation Status:	No operation in progress		Boot Bloc						
Progress in %:	0	*	Virtual Drive Count						
▼ Firmware Versions			Virtual Di						
Product Name:	Cisco Boot optimized M.2 Raid controller		Degraded Dr						
Product PID:	UCS-M2-HWRAID		Offline Dr						
Serial Number:	FCH24177ADW	-	Physical Drive Count						
Firmware Package Build:	2.3.17.1014	*	Physical Drive Count						
			Disk Pres						
▼ PCI Into			Critical E						
PCI Slot:	MSTOR-RAID		Failed D						
Vendor ID:	1b4b		Canabilities						
Device ID:	9230	,	Gapabilites						
Sub Vendor ID:	1137	•	HW Configuration						
SubDevice ID:	251		-						
a									

- Select M.2 drives and click on the arrow in order to move them into Drive Groups.
  You can select RAID Level 0 or 1.

**Note**: for **UCS-M2-HWRAID**, RAID 1 is the only option.

lear Foreign Cor	-fin										
	Crea	ate Virtu	al Drive fi	rom Unu	sed Physi	cal Drives					• ×
15	Crea	ate Driv	RAID Lev	el: 1			v				
	Phys	sical Dr	ives			Selected	2 / Total 2 🍦 🗸		1	Drive Groups	o -
		ID	Size(MB)	)	Model	Phy Internet	sical Drives			Name	
1.2 Raid controlle	V	253 254	228936 M	B	ATA ATA	SSD SSD	SATA SATA	>>		No data available	
								<<			
	Virtu	ual Driv	e Propert	les							_
			Name:	RAID1				S	ize 🛛		MB 🔻
		Strip 3	Size (MB):	64k			•				
								Generate XML/	API Re	quest Create Virtual Drive	Close

- Optionally you can modify the virtual Drive name and strip size.
  Click Create Virtual Drive.

Cre	ate Virtu	al Drive f	rom Unu:	sed Physic	al Drives	_	_		_	?	×
		RAID Lev	el: 1			T					
Cre	ate Drive	Groups									
Phy	sical Dri	ves			Selected 0 / T	otal 0 🖧 🗸	_	Drive	Groups	- 4 <u>0</u>	
	ID	Size(MB)	)	Model	Interface	Туре			Name		
e No d	data availat	le					>>		DG [253.254]		
Virt	ual Drive	Propert	ies RAID1			_	Size	228936		MB 👻	
	Strip S	ize (MB):	64k			•					1
							Generate XMLAPI R	tequest	Create Virtual Drive	Close	

Verify Virtual Drive information

- Navigate to Virtual Drive Info and verify if the virtual drive is created.
- Details as status, health, RAID Level are visible under the Virtual Drive Info.

Controller Info Physical D Virtual Drives VD-0	Virtu	Virtual Drives Virtual Drive Delete Virtual Drive										
		Virtual Drive Number	Name	Status	Health	Size	RAID Level					
		0	RAID1	Optimal	Good	228872 MB	RAID 1					

Configure Boot Order

• Navigate to **Compute** and select **Configure Boot Order**.

		Services Cisco Integrated Management Controller						
	·	n / Compute / BIOS 🛧						
Chassis	•	BIOS Remote Management Power Policies PID Catalog Persistent Memory						
Compute		Enter BIOS Setup   Clear BIOS CMOS   Restore Manufacturing Custom Settings   Restore Defaults						
Networking	×	Configure BIOS Configure Boot Order Configure BIOS Profile						
Storage	•	I/O Server Management Security Processor Memory Power/Performance Note: Default values are shown in bold.						
Admin	Þ	Reboot Host Immediately:						
		MLOM OptionROM: Enabled						
		PCIe Slot 1 OntionPOM - Enabled						

- Navigate to Advance option.
  Select the Add Local CDD and Add Embedded Storage.

Configure Boot Order	_				
Configured Boot Level: Adva Basic Advanced	anced				
Add Boot Device	Advanced Boot Order	Configuration		Selected 0 / Total 2	ф
Add Local HDD	Enable/Disable Mod	ilfy Delete Clone	Re-Apply	Move Up Move Down	
Add SAN Boot	Name	Туре	Order	State	
Add iSCSI Boot	CD	LOCALCDD	1	Enabled	
Add USB	os	EMBEDDEDSTOR	2	Enabled	
Add Virtual Media	0				
Add PCHStorage					
Add UEFISHELL					
Add NVME					
Add Local CDD					
Add HTTP Boot					
Add Embedded Storage					
				Save Changes Reset Values	C



Note: Alternatively you can use the boot option Add Local HDD and select slot MSTOR-RAID

Map ISO image on KVM

• Select Launch vKVM, a new window is opened

	Refresh   Host Power Launch vKVM ing   CIMC Reboot   Locator LED   @
o IMC) Information	
al)	
Select Timezone	
_	
Overall Utilization (%) CPU Utilization (%)	
Memory Utilization (%) OUtilization (%)	

• Select Virtual Media and select the respective map option.



• Browse the ISO file from your local computer and select Map Drive.

Cop Man Virtual Media - CD/DVD	
Pre Pre Bio Browse Selected File VMware-VMvisor-Installer × Pla Read Only Pro Tot Mem	
Cisco IMC IPv4 Address : 10.31.123.34 Cisco IMC MAC Address : BC:4A:56:59:3D:FC	

• Confirm ISO is mapped.



• Reboot the server to start the installation.



## Verify

Confirm OS is able to detect Virtual Drive information.

Select a Disk to Install or Upgrade (any existing VMFS-3 will be automatically upgraded to VMFS-5)								
* Contair # Claimed	ns a VMFS iby VMwar	partition evSAN						
Storage [	)evice						Capacity	
Local: ATA Remote: (none)	CISCO	VD	(† 10.,	ATA	_CISCO_V	))	) 223.51 GiB	
(Esc)	Cancel	(F1) Deta	ails	(F5) F	Refresh	(Enter)	Continue	

### Troubleshoot

RAID can be configured from Server BIOS Setup if CIMC is not configured.

Select Enter BIOS Setup.

**Note:** BIOS Setup can be accessed if you press F2 during the server post.

🗲 🖞										
A / Compute / BIOS ★										
BIOS Remote Management	Power Po	olicies	PID Catalog	Persiste						
Enter BIOS Setup										
Configure BIOS Configure Boot Order Configure BIOS Profile										
BIOS Properties	BIOS Properties									
Running	Version	C220M6.4	l.2.1c.0.0526211819							
UEFI Sec	ure Boot									
Actual Bo	oot Mode	Uefi								
Configured Bo	oot Mode	Legacy 🔻								
Last Configured Boot Orde	r Source	CIMC								
Configured One time boo	ot device	OS		•						

Select the **Power Cycle** option.

Refresh Host Power	Launch vKVM   Ping   CIMC Reboot   Locator LED
 Host: Powered On	
Power Off	
Power On	
Power Cycle	
Hard Reset	
Shut Down	

Navigate to Advanced tab and select Cisco Boot optimized M.2 RAID Controller.

Aptio Setup – AMI Main <mark>Advanced</mark> Server Mgmt Security Boot Save & Exit	
<ul> <li>Trusted Computing</li> <li>Serial Port Console Redirection</li> <li>Platform Configuration</li> <li>Socket Configuration</li> <li>FrontPanel(FP) HDD Slot Inventory</li> <li>PCI Subsystem Settings</li> <li>USB Configuration</li> <li>Network Stack Configuration</li> <li>LOM and PCIE Slots Configuration</li> <li>All Cpu Information</li> <li>RAM Disk Configuration</li> <li>SiscsI Configuration</li> <li>Gisco Boot optimized M.2 Raid controller</li> <li>BROADCOM (Cisco 126 SAS RAID Controller with 4GB FBWC (16 Drives)&gt; Configuration Utility - 07.15.04.02</li> <li>Driver Health</li> </ul>	Manage Cisco Boot optimized M.2 Raid controller Configuration. ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F9: Optimized Defaults F10: Save & Reset System ESC: Exit
	K/M: SCPOII NEID UP/DUWN

Select the necessary option for RAID configuration.

Aptio Setup – AM: Advanced	I
RAID Main Configuration	View physical/virtual disk information.
<ul> <li>[Physical/Virtual Disk Information]</li> <li>[Create RAID Configuration]</li> <li>[Delete RAID Configuration]</li> <li>[RAID Rebuild]</li> <li>[Erase Physical Disk]</li> <li>[Controller Information]</li> </ul>	
	<pre> ++: Select Screen  f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F9: Optimized Defaults F10: Save &amp; Reset System ESC: Exit K/M: Scroll help UP/DOWN</pre>

### **Related Information**

<u>Technical Support & Documentation - Cisco Systems</u>