

在UCS B200 M5上安裝帶有M.2 SSD的作業系統 (VMware、Windows)

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簡介

本文檔介紹如何在UCS B200 M5上安裝帶有M.2 SSD的作業系統(VMware、Windows)

Cisco UCS B200 M5刀鋒伺服器有一個微型儲存模組選項，可插入主機板插槽以提供額外的內部儲存。迷你儲存模組可以是以下型別之一：

- 一個SD卡模組，最多支援兩個SD卡。(使用UCS-MSTOR-SD cartridge)
- 一個M.2 SSD模組，最多支援兩個SATA M.2 SSD。(使用UCS-MSTOR-M2網橋)

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必要條件

需求

- 瞭解UCS、策略和配置檔案

採用元件

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除 (預設) 的組態來啟動。如果您的網路正在作用，請確保您已瞭解任何指令可能造成的影響。

UCSM 3.2.2b或更高版本

UCS B200 M5 (伺服器韌體3.2.2b或更高版本)

功能目錄3.2.3i或更高版本

背景資訊

M.2磁帶盒由裝有UCS-M2-XXXGB SATA驅動器的UCS-MSTOR-M2托架組成

您可以在運營商中使用一個或兩個M.2 SSD。

M.2插槽1位於托架頂端；M.2插槽2位於托架的下側（與托架與伺服器主機板插槽的聯結器位於同一側）

如圖所示（兩個插槽均安裝了M.2 SSD驅動器）



頂端 (插槽1)



底面 (插槽)

2)

M.2 UCS-MSTOR-M2庫存在UCSM中

- General
- Inventory
- Virtual Machines
- Installed Firmware
- CIMC Sessions
- SEL Logs
- VIF Paths
- Health
- Motherboard
- CIMC
- CPUs
- GPUs
- Memory
- Adapters
- HBA's
- NICs
- iSCSI vNICs
- Security
- S

Mini Storage

mini-storage-M2-1

ID : 1
Model : UCS-MSTOR-M2
Type : M2
Vendor : Cisco Systems Inc
Revision : 0
Serial :
VID : V01
Part Number : 73-17926-05
Product Name : Cisco UCS Mini-Storage Carrier for M.2
Caption : Cisco UCS Mini-Storage Carrier for M.2 (holds up to 2)
Description : Dual M.2 Mini-Storage Carrier (holds up to 2 M.2 modules)
Controller ID : 1
Controller Type : PCH

只有在重新確認伺服器後，新增或刪除磁碟才會更新到UCSM清單，因為PCH控制器和M.2 Sata驅動器沒有CIMC感測器。

UCSM將警告您有關小型儲存的任何硬體更改，並且還會請求您重新確認伺服器。

Properties

Affected object	: sys/chassis-1/blade-7/board/mini-storage-M2-1/inv-status		
Description	: Mini storage inventory mismatch		
ID	: 13155391	Type	: equipment
Cause	: hardware-mismatch	Created at	: 2018-09-26T17:13:58Z
Code	: F1901	Number of Occurrences	: 1
Original severity	: Critical		
Previous severity	: Critical	Highest severity	: Critical

Properties

Affected object	: sys/chassis-1/blade-7		
Description	: Server 1/7 hardware inventory mismatch. Acknowledge the server to clear the fault		
ID	: 13155390	Type	: equipment
Cause	: hardware-inventory-mismatch	Created at	: 2018-09-26T17:13:58Z
Code	: F1913	Number of Occurrences	: 1
Original severity	: Critical		
Previous severity	: Critical	Highest severity	: Critical

重新確認伺服器後，應更新儲存清單（在本例中，插槽2中新增了M.2 ssd）。

Equipment / Chassis / Chassis 1 / Servers / Server 7

General | **Inventory** | Virtual Machines | Installed Firmware | CIMC Sessions | SEL Logs | VIF Paths | Health | Diagnostics | Faults | Events | FSM | Statistics | Temperatures | Power

Motherboard | CIMC | CPUs | GPUs | Memory | Adapters | HBAs | NICs | iSCSI vNICs | Security | **Storage**

Controller | LUNs | **Disks**

Name	Size (MB)	Serial	Operability	Drive State	Presence	Technology	Bootable
Storage Controller PCH 1							
Disk 1	227927	17191708379C	Operable	Online	Equipped	SSD	Unknown
Disk 2	227927	173819147CCD	Operable	Online	Equipped	SSD	Unknown
Storage Controller SAS 1							

設定

板載Lewisburg sSATA控制器用於管理這兩種型別的M.2墨盒，但不管理任何前面板驅動器。

PCH控制器在AHCI模式或SWRAID模式下運行。

AHCI模式： 磁碟顯示為JBOD磁碟。

SWRAID模式： 根據策略中的使用者配置，磁碟可以位於RAID0或RAID1中。

所需的Raid	BIOS P-SATA設定	儲存配置檔案控制器定義設定	備註
RAID0、RAID1	SWRAID	RAID0或RAID 1	僅支援UEFI引導。作業系統需要megasr驅動程序
JBOD	已禁用	諾萊德	舊版或UEFI引導

SW RAID模式下的嵌入式SATA MegaRAID控制器不支援VMware ESX/ESXi作業系統，因為VMWare沒有軟體raid驅動程式。您可以在AHCI模式下使用VMWare。

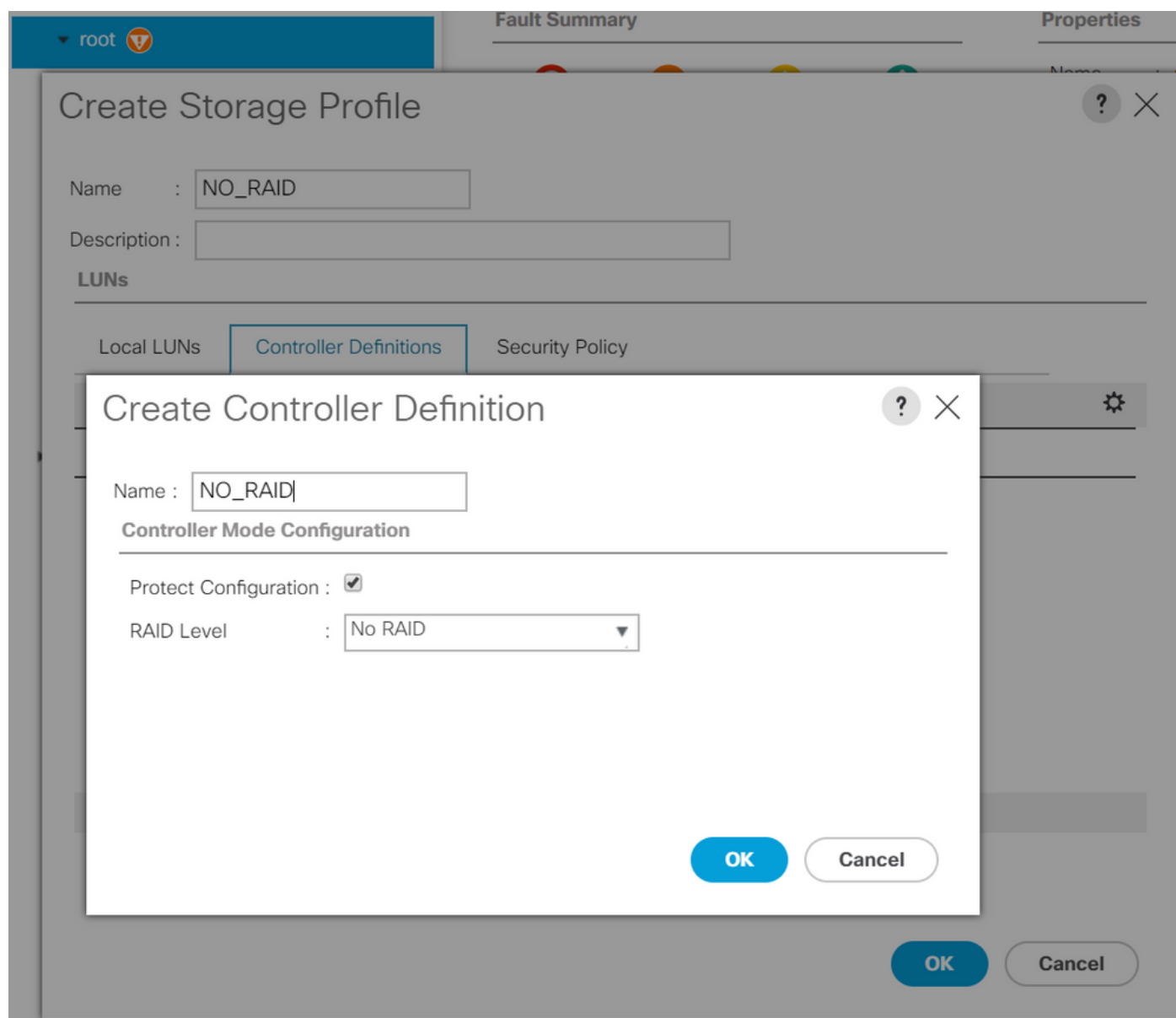
支援Microsoft Windows Server 2016 Hyper-V虛擬機器監控程式與嵌入式MegaRAID控制器在SW RAID模式下一起使用，但不支援所有其他虛擬機器監控程式。

AHCI模式支援所有虛擬機器監控程式。

AHCI模式

這是在AHCI模式下使用PCH控制器安裝VMware ESXi的示例。

建立RAID級別設定為「無RAID」的儲存配置檔案。



建立P-SATA模式設定為AHCI的BIOS策略

BIOS Policy



Main Advanced **Boot Options** Server Management Events

Advanced Filter Export Print



BIOS Setting	Value
Cool Down Time (sec)	Platform Default
Number of Retries	Platform Default
Boot option retry	Platform Default
SAS RAID module	Platform Default
SAS RAID	Platform Default
Onboard SCU Storage Support	Platform Default
P-SATA mode	AHCI
Power On Password	Platform Default
IPV6 PXE Support	Platform Default

建立引導策略

將引導模式設定為UEFI

選擇「新增CD/DVD」

選擇「新增嵌入式本地磁碟」

Create Boot Policy



Name : AHCI_Boot

Description :

Reboot on Boot Order Change :

Enforce vNIC/vHBA/iSCSI Name :

Boot Mode : Legacy Uefi

Boot Security :

WARNINGS:

The type (primary/secondary) does not indicate a boot order presence.

The effective order of boot devices within the same device class (LAN/Storage/iSCSI) is determined by PCIe bus scan order.

If **Enforce vNIC/vHBA/iSCSI Name** is selected and the vNIC/vHBA/iSCSI does not exist, a config error will be reported.

If it is not selected, the vNICs/vHBAs are selected if they exist, otherwise the vNIC/vHBA with the lowest PCIe bus scan order is used.

Local Devices

Add Local Disk

- Add Local LUN
- Add Local JBOD
- Add SD Card
- Add Internal USB
- Add External USB
- Add Embedded Local LUN
- Add Embedded Local Disk

Add CD/DVD

- Add Local CD/DVD
- Add Remote CD/DVD

Boot Order

+ - Advanced Filter Export Print

Name	Or...	vNIC/...	Type	LUN ...	WWN	Slot N...	Boot ...	Boot ...	Descri...
CD/DVD	1								
Embedded Disk	2								
Embedded Disk Image			Primary			1			

Move Up Move Down Delete

Set Uefi Boot Parameters

從「新增嵌入式本地磁碟」部分選擇適當的選項

如果選擇「Any」，則預設順序為Disk1、Disk2

Add Embedded Local Disk



Type : Primary Secondary Any

Disk Slot Number :

OK

Cancel

指定Uefi引導引數

Set Uefi Boot Parameters

Uefi Boot Parameters

Boot Loader Name :

Boot Loader Path :

Boot Loader Description :

將之前建立的BIOS策略分配給服務配置檔案

Servers / Service Profiles / root / Service Profile M.2_AHCI

General Storage Network iSCSI vNICs vMedia Policy Boot Order Virtual Machines FC Zones Policies Server Details CIMC Sessions FSM V

Actions

- Change Serial over LAN Policy
- Change Power Sync Policy

Policies

BIOS Policy

BIOS Policy:

BIOS Policy Instance : org-root/bios-prof-AHCI

將之前建立的儲存配置檔案分配到服務配置檔案

- General
 - Storage**
 - Network
 - iSCSI vNICs
 - vMedia Policy
 - Boot Order
 - Virtual Machines
-
- Storage Profiles**
 - Local Disk Configuration Policy
 - vHBAs
 - vHBA Initiator Groups

Actions

Modify Storage Profile

Storage Profile Policy

Name : **AHCI_SP**
 Description :
 Storage Profile Instance : [org-root/profile-AHCI_SP](#)

- Local LUNs
- Controller Definitions**
- Security Policy
- Faults

Advanced Filter Export Print

Name

NO_RAID

AHCI模式下嵌入式PCH控制器的UCSM檢視

General **Inventory** Virtual Machines Installed Firmware CIMC Sessions SEL Logs VIF Paths Health Diagnostics Faults Events FSM Statistics Temperatures

Motherboard CIMC CPUs GPUs Memory Adapters HBAs NICs iSCSI vNICs Security **Storage**

Controller **LUNs** Disks

+ - Advanced Filter Export Print

Name	ID	Type	Subtype
Storage Controller PCH 1	1	PCH	NA

General **FSM** Faults Events Statistics

Actions

Import Foreign Configuration	ID : 1	Name : Lewisburg SSATA Controller [AHCI mode]
Clear Foreign Configuration	Description : Lewisburg SSATA Controller [AHCI mode]	PID : N/A
Clear Boot Configuration	Model : Lewisburg SSATA Controller [AHCI mode]	Serial : LSIROMB-0
Cancel Storage Operations	Revision : N/A	Vendor : Intel Corp.
Unpin Cache	Subtype : NA	PCI Slot :
Unlock Disk	RAID Support : RAID0, RAID1	Rebuild Rate : N/A
Unlock For Remote	OOB Interface Supported : No	
Modify Remote Key	PCI Address : 00:17.5	
Disable Security	Number of Local Disks : 2	
	Pinned Cache Status : Unknown	

這是F2 BIOS選單中的檢視

注意pSATA設定為AHCI

LOM and PCIe Slots Configuration

Current Boot Mode	UEFI
SecureBoot Support	Disabled

SWRAID Configuration	
pSATA SATA OpROM	[AHCI]
M.2 SATA OpROM	[AHCI]

LOM and PCIe Slots Configuration

- ▶ PCIe Slots Inventory Details
- ▶ PCIe Link Speed Configuration
- ▶ PCI OpROM Configuration

請注意，UEFI策略名為VMware ESXi（在之前的引導策略中指定）

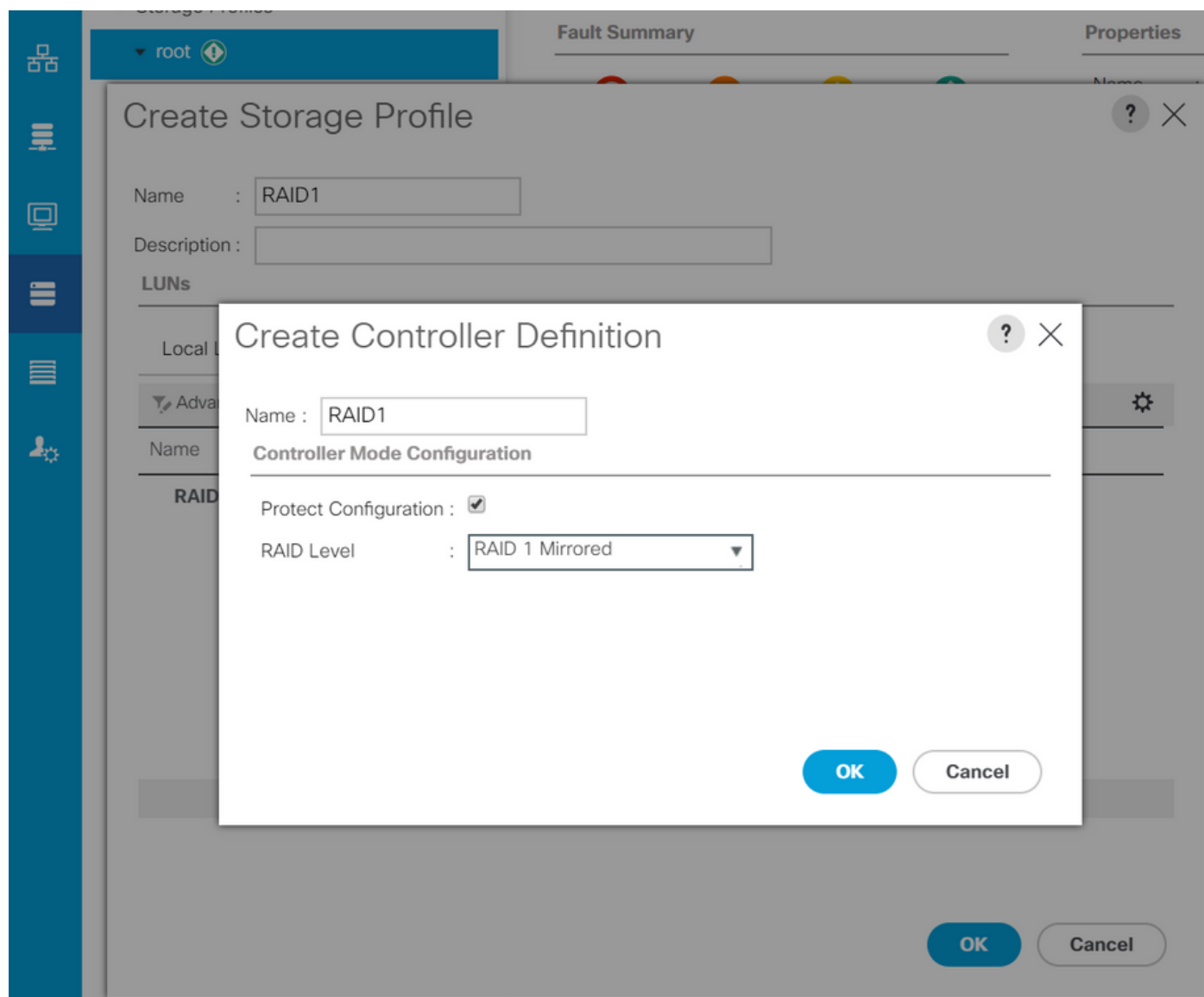
Main Advanced Server Mgmt Boot Options Save & Exit

Boot Configuration	
Setup Prompt Timeout	3
Bootup NumLock State	[On]
SecureBoot Support	Disabled
Boot Mode	[UEFI Mode]
CDN Control	[Disabled]
Boot Option Priorities	
Boot Option #1	[VMware ESXi]
Boot Option #2	[UEFI: Built-in EFI Shell]
Boot Option #3	[Disabled]

SWRAID模式

以下是在SWRAID模式下使用PCH控制器安裝Microsoft Windows Server 2016的示例

建立RAID級別設定為RAID1的儲存配置檔案以實現冗餘。



建立P-SATA模式設定為SWRAID的BIOS策略

BIOS Policy

Main Advanced **Boot Options** Server Management Events

Advanced Filter Export Print

BIOS Setting	Value
Cool Down Time (sec)	Platform Default
Number of Retries	Platform Default
Boot option retry	Platform Default
SAS RAID module	Platform Default
SAS RAID	Platform Default
Onboard SCU Storage Support	Platform Default
P-SATA mode	LSI SW RAID
Power On Password	Platform Default
IPV6 PXE Support	Platform Default

+ Add - Delete i Info

OK Apply Cancel Help

建立引導策略

將引導模式設定為UEFI

選擇「新增CD/DVD」

選擇「新增嵌入式本地LUN」

Create Boot Policy



Name :

Description :

Reboot on Boot Order Change :

Enforce vNIC/vHBA/iSCSI Name :

Boot Mode : Legacy Uefi

Boot Security :

WARNINGS:

The type (primary/secondary) does not indicate a boot order presence.
The effective order of boot devices within the same device class (LAN/Storage/iSCSI) is determined by PCIe bus scan order.
If **Enforce vNIC/vHBA/iSCSI Name** is selected and the vNIC/vHBA/iSCSI does not exist, a config error will be reported.
If it is not selected, the vNICs/vHBAs are selected if they exist, otherwise the vNIC/vHBA with the lowest PCIe bus scan order is used.

Local Devices

- Add Local Disk
 - Add Local LUN
 - Add Local JBOD
 - Add SD Card
 - Add Internal USB
 - Add External USB
 - Add Embedded Local LUN
 - Add Embedded Local Disk
- Add CD/DVD
 - Add Local CD/DVD
 - Add Remote CD/DVD

Boot Order

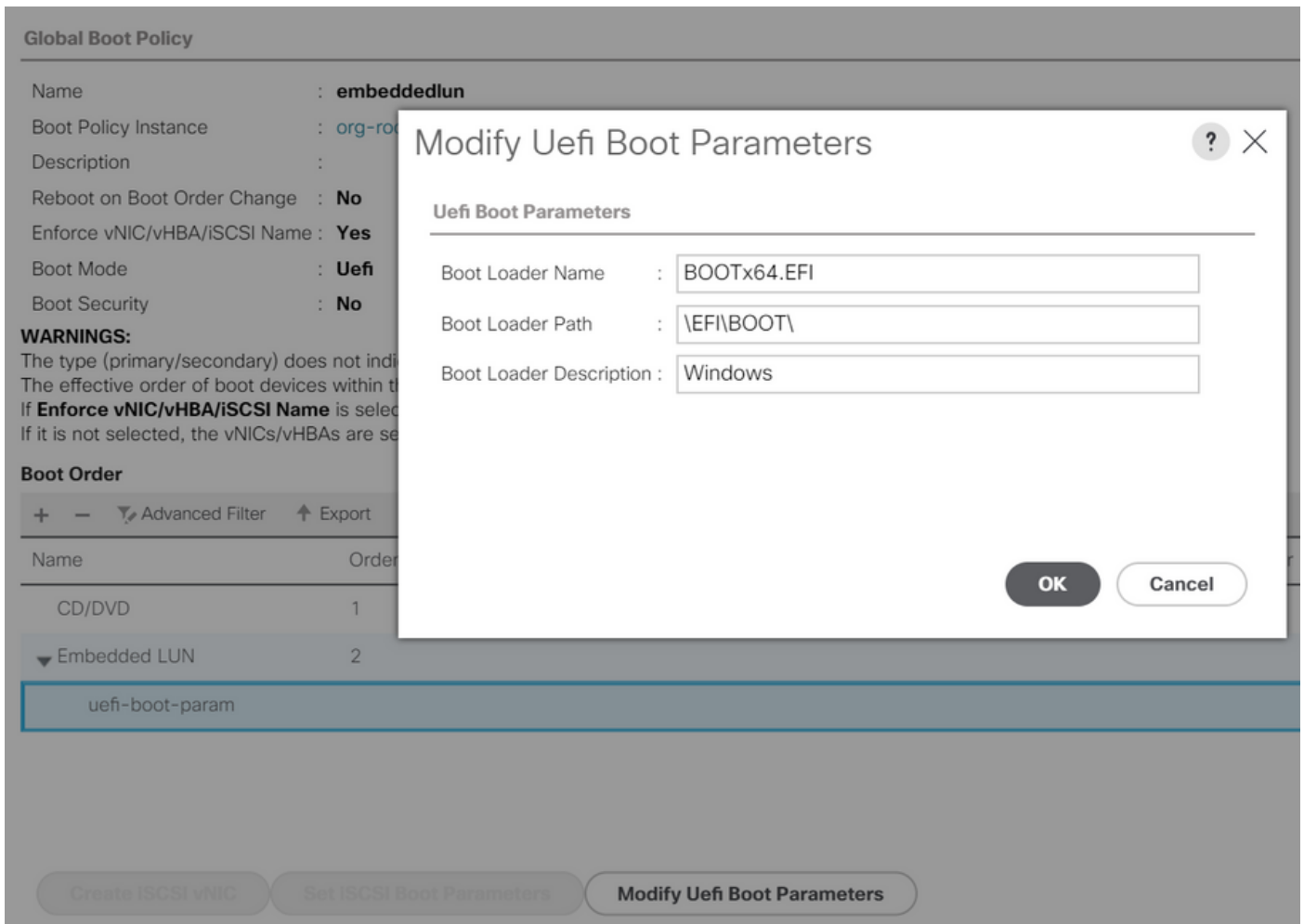
+ - Advanced Filter Export Print

Name	Order	vNIC/vH...	Type	LUN Na...	WWN	Slot Nu...	Boot Na...	Boot Path	Descript...
CD/...	1								
Emb...	2								

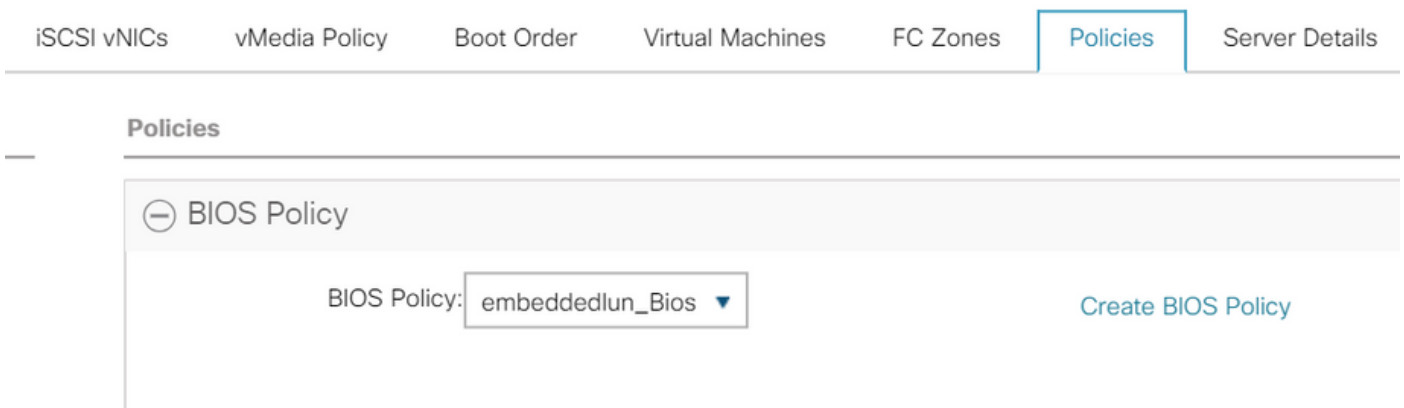
Move Up Move Down Delete

Set Uefi Boot Parameters

指定UEFI引導引數



將之前建立的BIOS策略分配給服務配置檔案



將之前建立的儲存配置檔案分配到服務配置檔案

Properties for: Service Profile embeddedlun

< General **Storage** Network iSCSI vNICs vMedia Policy

Storage Profiles Local Disk Configuration Policy vHBAs vHBA Init

Actions

[Modify Storage Profile](#)

Storage Profile Policy

Name : |
Description :
Storage Profile Instance : |

Local LUNs **Controller Definitions** Security Policy Faults

Advanced Filter Export Print

Name

RAID1

嵌入式的UCSM檢視 SWRAID模式下的PCH控制器

General Inventory Virtual Machines Installed Firmware CIMC Sessions SEL Logs VIF Paths Health Diagnostics Faults Events FSM Statistics Temperatures Power

Motherboard CIMC CPUs GPUs Memory Adapters HBAs NICs iSCSI vNICs Security Storage

Controller LUNs Disks

+ - Advanced Filter Export Print

Name	ID	Type	Subtype
Storage Controller PCH 1	1	PCH	NA
Storage Controller SAS 1	1	SAS	NA

General FSM Faults Events Statistics

Actions	ID	Name
Import Foreign Configuration	1	Lewisburg SSATA Controller [SWRAID mode]
Clear Foreign Configuration		
Clear Boot Configuration		
Cancel Storage Operations		
Unpin Cache		
Unlock Disk		
Unlock For Remote		
Modify Remote Key		
Disable Security		

Description	: Lewisburg SSATA Controller [SWRAID mode]	PID	: N/A
Model	: Lewisburg SSATA Controller [SWRAID mode]	Serial	: LSIROMB-0
Revision	: NA	Vendor	: Intel Corp.
Subtype	: NA	PCI Slot	:
RAID Support	: RAID0, RAID1	Rebuild Rate	: N/A
OOB Interface Supported	: No		
PCIe Address	: 00:17.5		
Number of Local Disks	: 2		
Pinned Cache Status	: Unknown		

這是F2 BIOS選單中的檢視

注意pSATA設定為AHCI

LOM and PCIe Slots Configuration

```

Current Boot Mode                UEFI
SecureBoot Support                Disabled

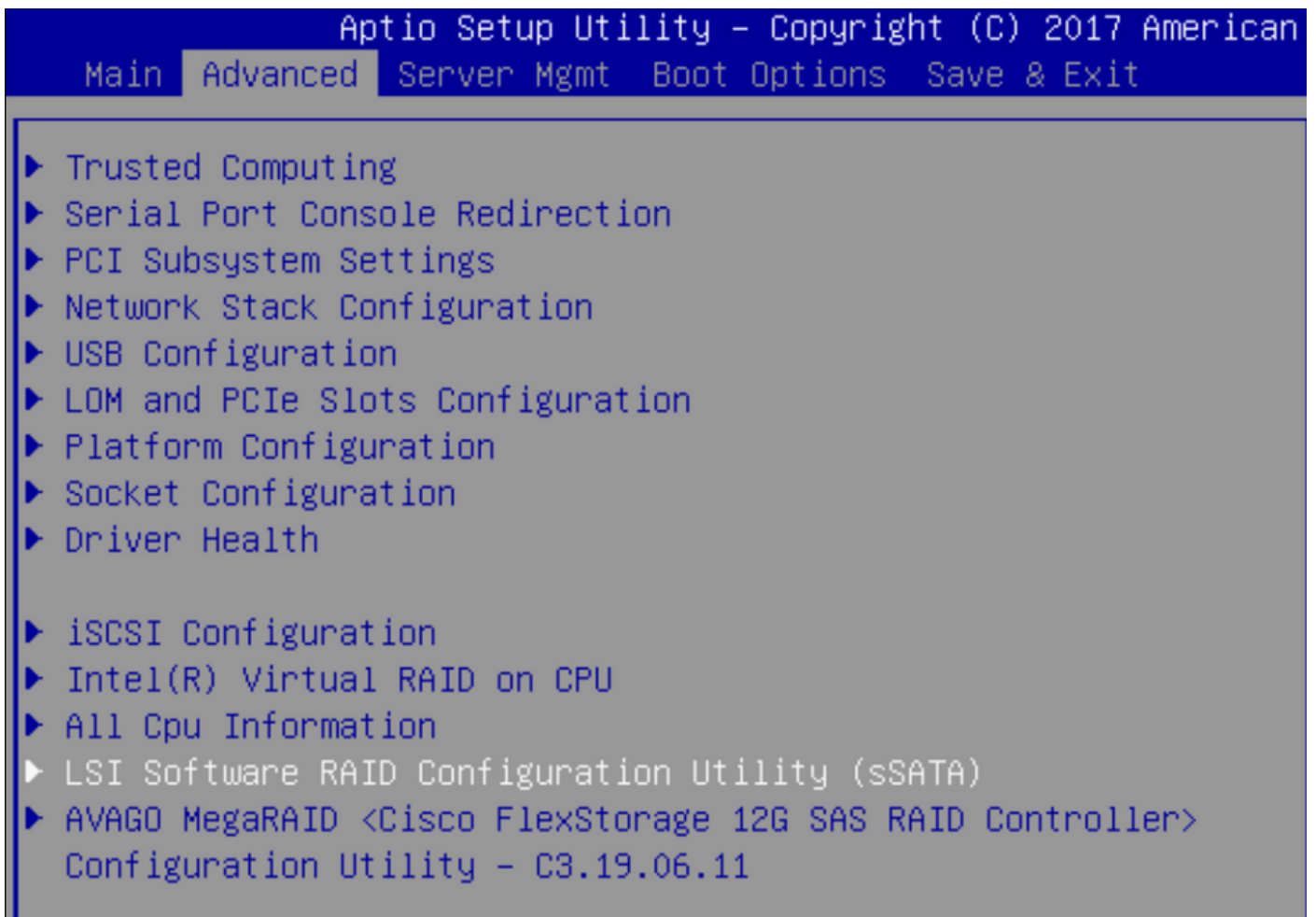
SWRAID Configuration
pSATA SATA OpROM                 [LSI SW RAID]
M.2 SATA OpROM                   [LSI SW RAID]

LOM and PCIe Slots Configuration

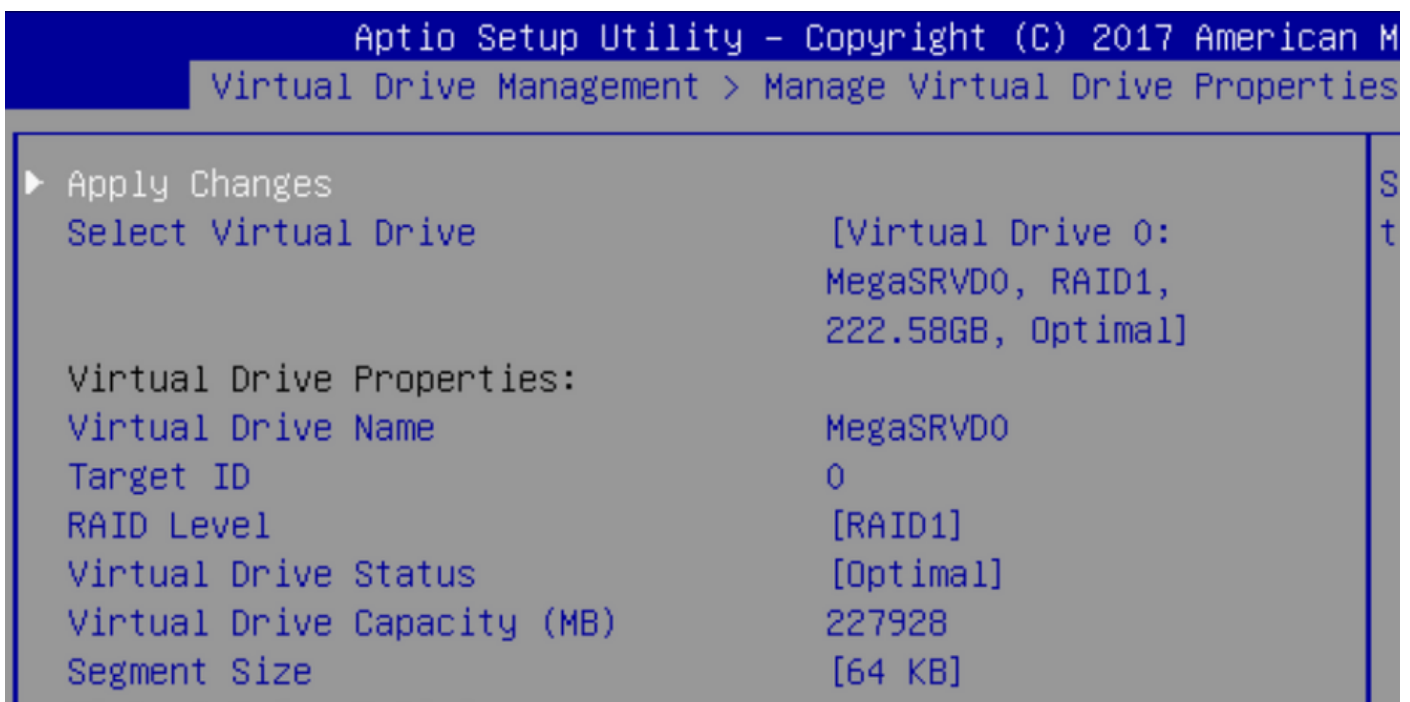
▶ PCIe Slots Inventory Details
▶ PCIe Link Speed Configuration
▶ PCI OpROM Configuration

```

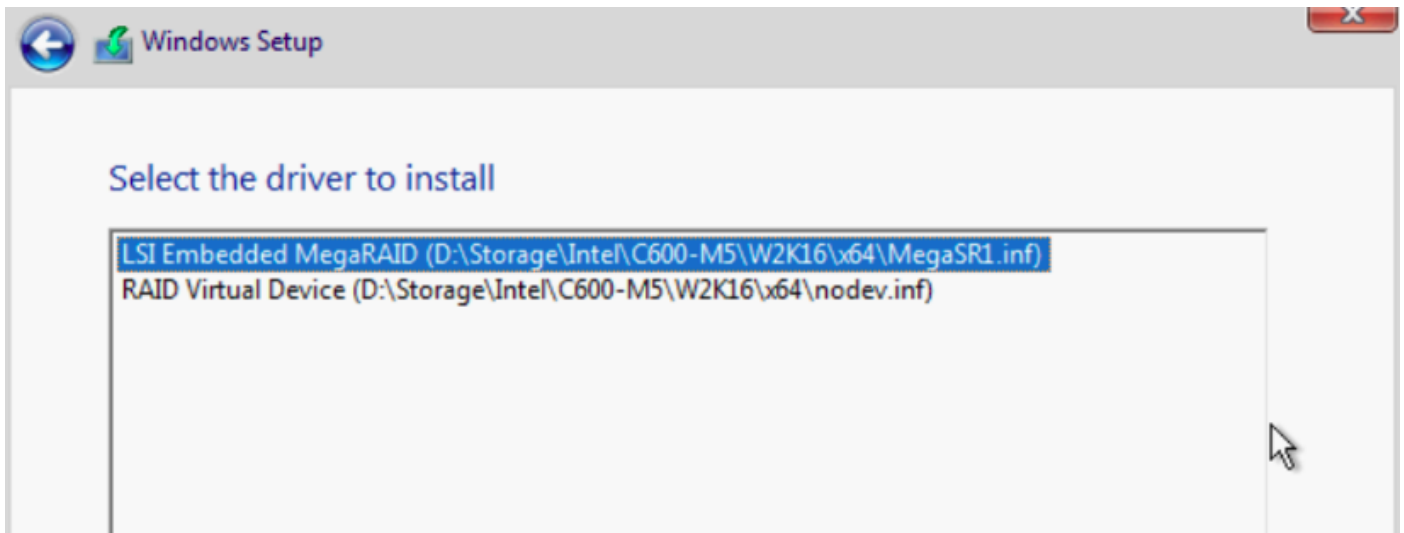
注意LSI Software RAID Configuration Utility(sSATA)顯示



我們可以確認在BIOS中將虛擬驅動器設定為RAID1

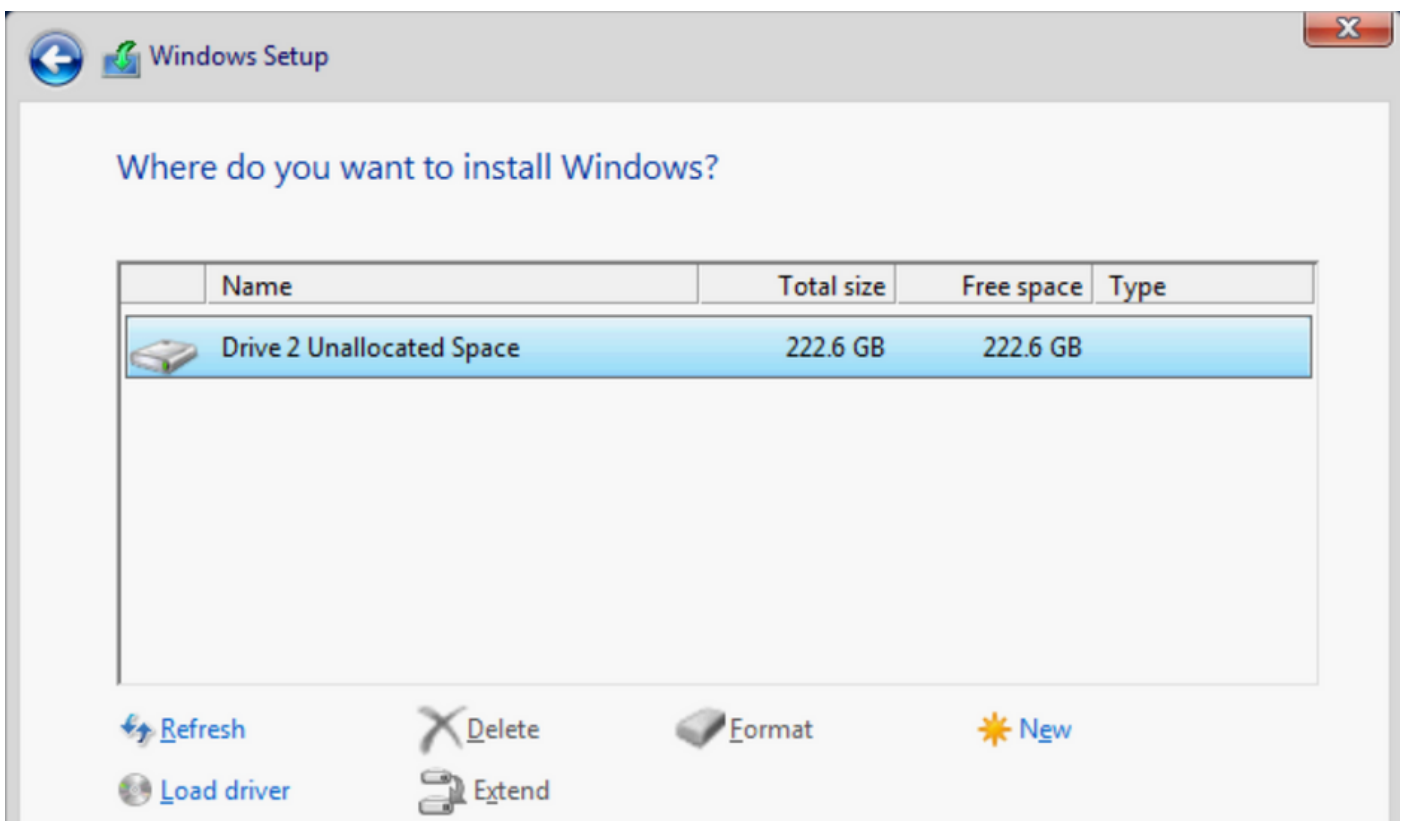


對映Windows作業系統後，當您到達安裝驅動程式的部分時，瀏覽驅動程式資料夾的內容到嵌入式MegaRAID驅動程式的位置：儲存/Intel/C600-M5/<OS>/

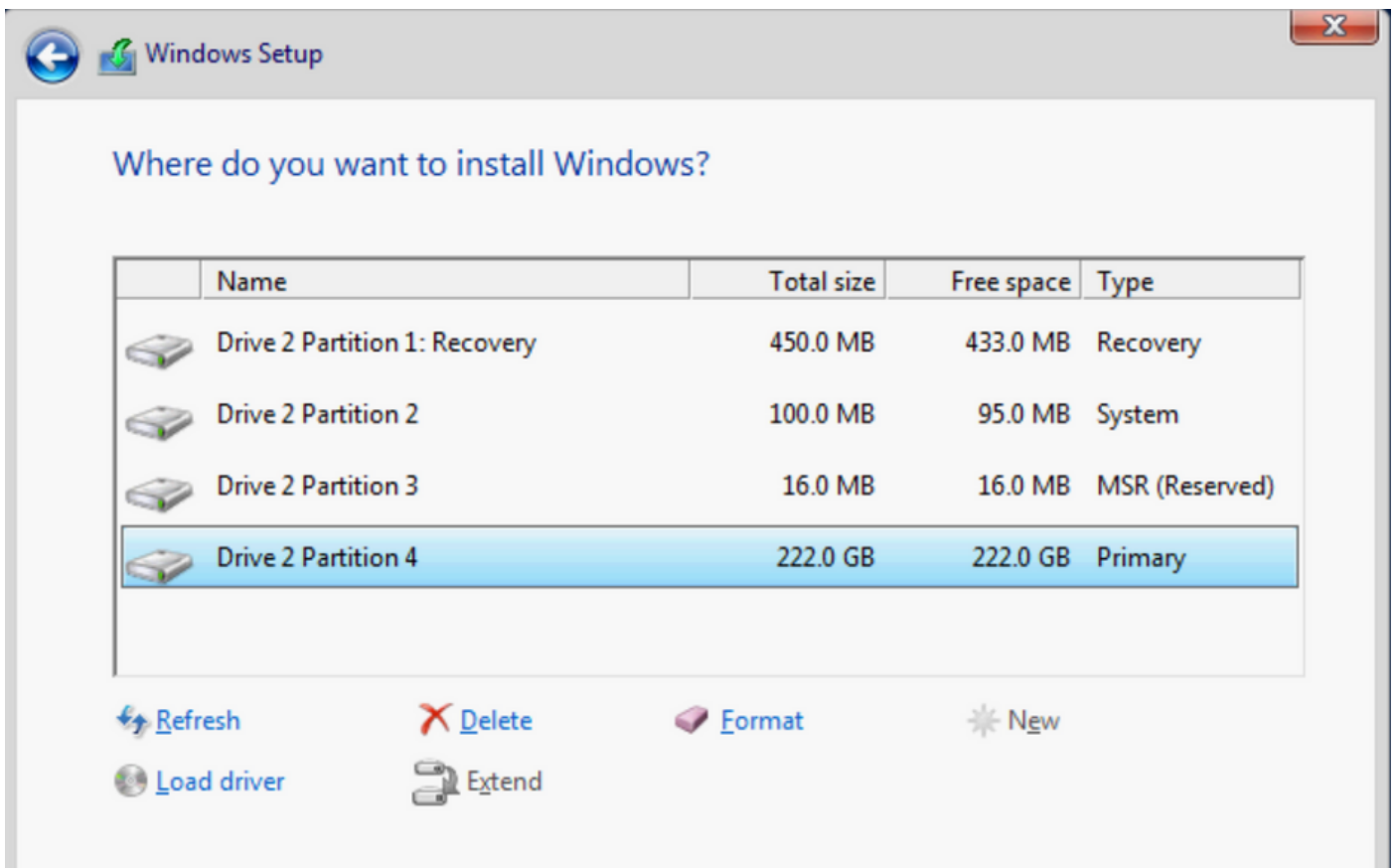


我們應該能夠檢測我們建立的虛擬驅動器

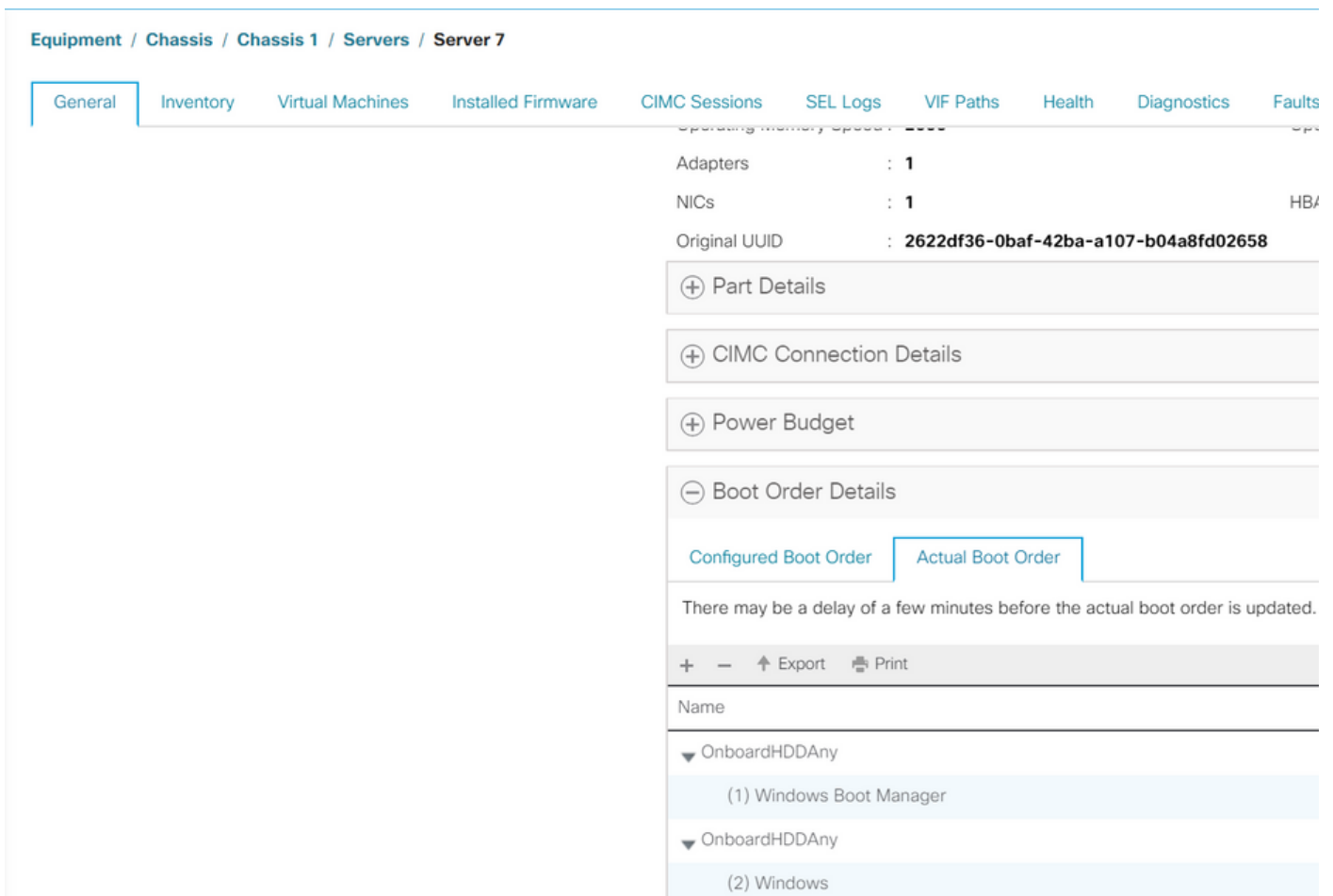
按一下「新建」



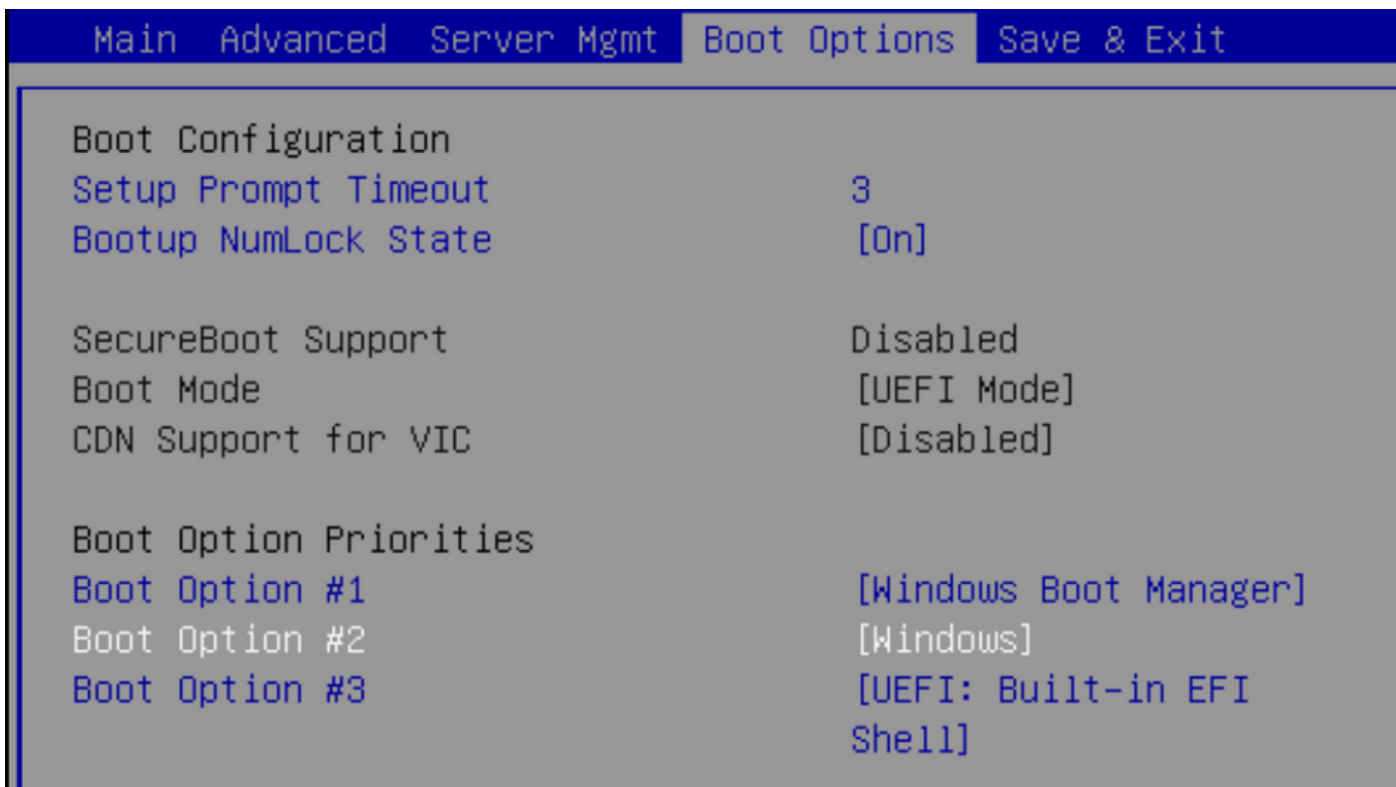
磁碟應像這樣進行分割槽，並允許在主分割槽上安裝Windows。



安裝作業系統後，您可以按實際引導順序驗證對映



請注意，實際引導順序中的引數與BIOS中的引導選項中的引數相同



清理

如果要安裝其他作業系統或將控制器切換到AHCI模式，則需要清理磁碟。

為此，請在磁碟清理設定為「是」的情況下，將清理策略應用到服務配置檔案，然後解除服務配置檔案的關聯，以使清理生效。

Actions	Properties
Delete	Name : diskscrub
Show Policy Usage	Description : <input type="text"/>
Use Global	Owner : Local
	Disk Scrub : <input type="radio"/> No <input checked="" type="radio"/> Yes
	BIOS Settings Scrub : <input checked="" type="radio"/> No <input type="radio"/> Yes
	FlexFlash Scrub : <input checked="" type="radio"/> No <input type="radio"/> Yes

服務配置檔案取消關聯後，驅動器狀態應變為「未配置良好」。

Name	Size (MB)	Serial	Operability	Drive State	Presence	Technology	Bootable
▼ Storage Co...							
Disk 1	228936	17191708379C	Operable	Unconfigured Good	Equipped	SSD	Unknown
Disk 2	228936	173819147CCD	Operable	Unconfigured Good	Equipped	SSD	Unknown

M.2 SSD只能在SWRAID模式下擦除，而不能在AHCI模式下擦除。

驗證

目前沒有適用於此組態的驗證程序。

疑難排解

目前尚無適用於此組態的具體疑難排解資訊