

在UCS刀片上配置UCS-M2-HWRAID

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简介

本文档介绍如何配置统一计算系统(UCS)-M2-HWRAID，以便操作系统(OS)可以将磁盘用于存储或用作可引导磁盘。

先决条件

要求

Cisco 建议您了解以下主题：

- UCS M5服务器
- UCSM 3.2.2b或更高版本
- UEFI模式下的兼容OS（最小值如下）CentOS 7.6ESXi 6.5U2RHEL 7.6WinServer 2016 WinServer 2019更多：[UCS硬件和软件兼容性 适配器 > RAID > 思科引导优化M.2硬件 RAID控制器（思科）](#)

使用的组件

本文档中的信息基于以下软件和硬件版本：

- UCS-M2-HWRAID
- 2x m.2相同型号和容量的驱动器

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

背景信息

UCS-M2-HWRAID包含两个m.2千兆棒；一个在运营商的每一端。UCS-M2-HWRAID和UCS-MSTOR-M2看起来相似，但在此配置示例中，硬件RAID需要UCS-M2-HWRAID控制器。

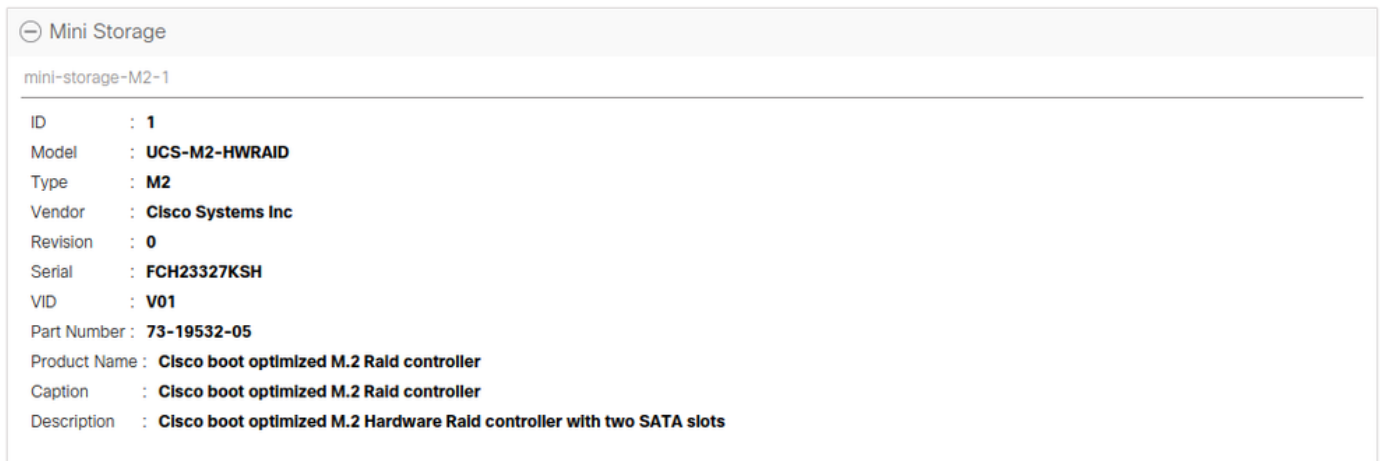
配置

检查当前状态

1.检查服务器清单中是否显示了必要的部件。

在UCSM中，导航至Equipment > Chassis x > Servers > Server x。

选择顶部的Inventory (资产) 选项卡。选择Mini Storage。确保您的型号显示为UCS-M2-HWRAID，如下图所示。

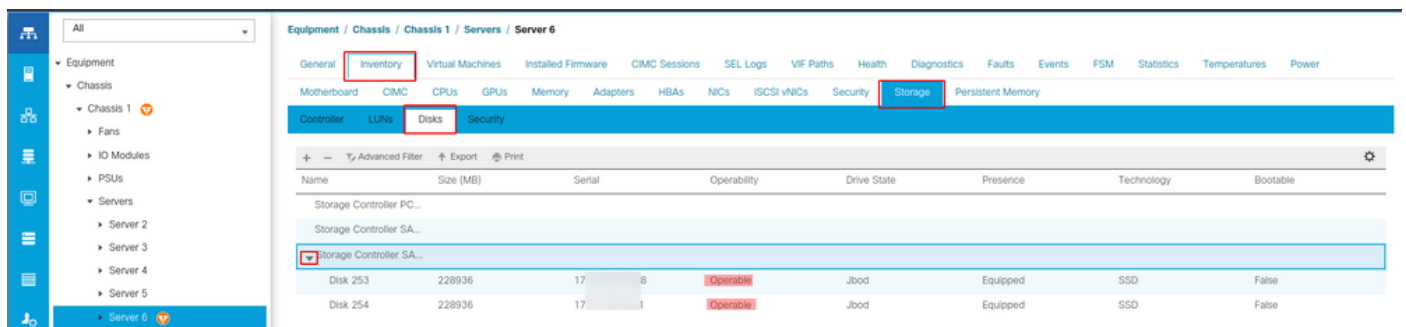


2.检查是否安装和检测了两个m.2驱动器。

导航至资产>存储>磁盘。

从下拉列表中，选择存储控制器Sata 1。

检查显示了哪两个m.2磁盘 (253和254)，并且处于可操作状态。在M6上，两个m.2磁盘将是245和246。驱动器状态可能不同。



3.检查是否存在任何孤立LUN。

导航至资产>存储> LUN。

检查存储控制器SATA 1是否有下拉箭头。否则，没有孤立LUN。

如果看到孤立的LUN，请在开始配置之前跳到底部的故障排除部分。

The screenshot shows the Cisco UCS Manager interface. On the left is a navigation tree with categories like Equipment, Chassis, Servers, and Policies. The main area is divided into tabs: General, Inventory, Virtual Machines, etc. The 'Storage' tab is selected, showing a table of storage controllers and virtual drives. The 'Virtual Drive m.2' is highlighted, and its properties are displayed in a detailed view below. The 'Delete' action is highlighted in the Actions menu.

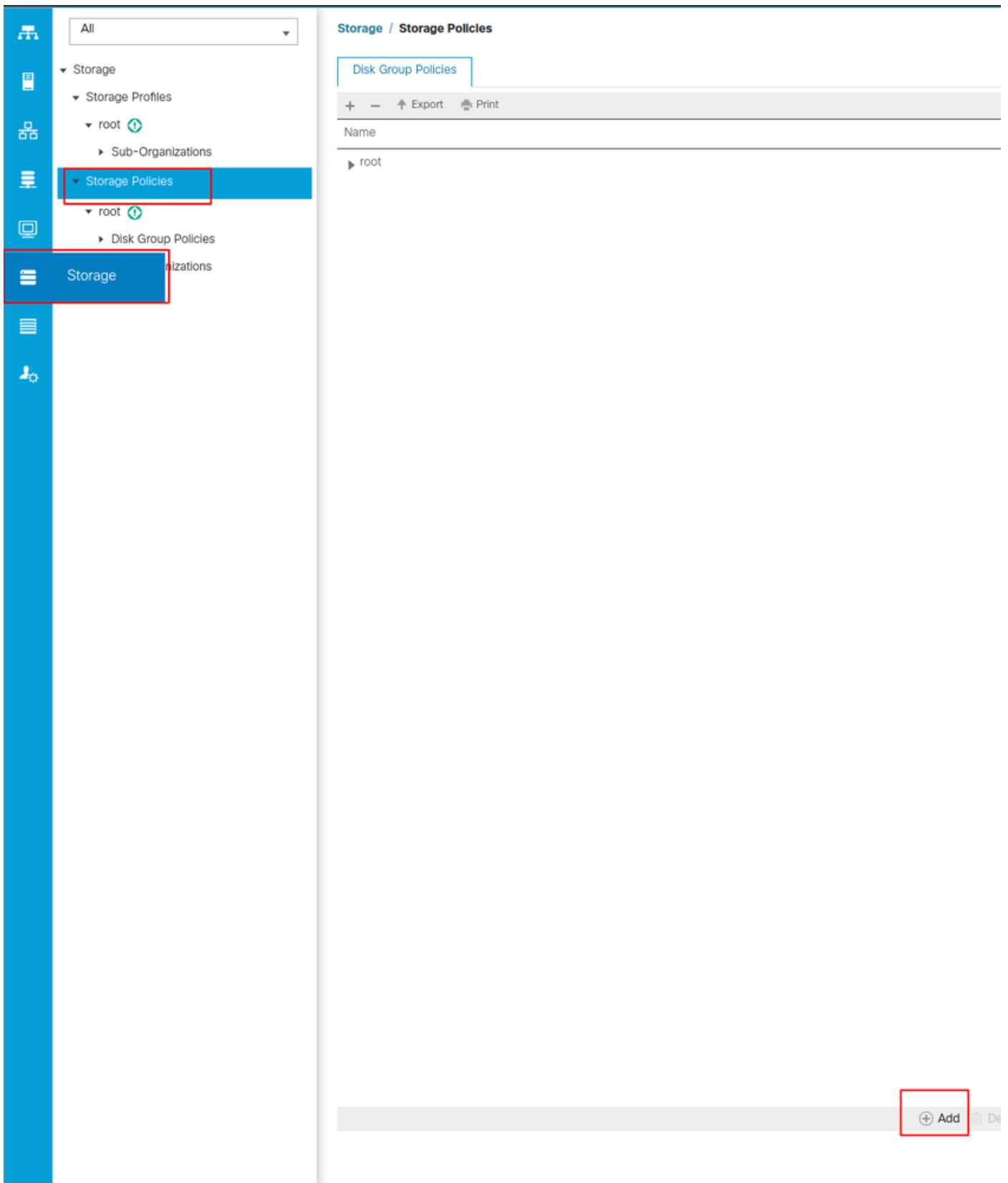
Name	Size (MB)	Raid Type	Config State	Deploy Action	Operability	Presence	Bootable
Storage Controller PCH 1							
Storage Controller SAS 1							
Storage Controller SATA 1							
Virtual Drive m.2	228872	RAID 1 Mirrored	Orphaned	No Action	Operable	Equipped	True

Property	Value
Virtual Drive Name	m.2
Type	RAID 1 Mirrored
Available Size on Disk Group (MB)	0
ID	1000
Oper Device ID	0
Strip Size (KB)	64
Read Policy	Normal
IO Policy	Direct
Bootable	True
Operability	Operable
Config State	Orphaned
Oper Qualifier Reason	N/A
Deploy Action	No Action

Slot ID	Role	Presence	Span ID	Operability Qualifier Reason
253	Normal	Equipped	Unspecified	N/A
254	Normal	Equipped	Unspecified	N/A

设置存储配置

1. 首先，您需要制定存储策略。导航 **存储 > 存储策略 > 添加**，如图所示。



在“创建磁盘组策略”窗口：

- 输入名称
- 说明 (可选)
- RAID级别 本指南中使用RAID1镜像，是最安全的选项。
- 选择**磁盘组配置**手动单选按钮。

Create Disk Group Policy



Name : m.2_raid1

Description : Raid1 group policy for m2. drives

RAID Level : RAID 1 Mirrored

Disk Group Configuration (Automatic) Disk Group Configuration (Manual)

Disk Group Configuration (Manual)

Advanced Filter Export Print

Slot Number	Role	Span ID
No data available		

Add Delete Info

Virtual Drive Configuration

Strip Size (KB) : Platform Default

Access Policy : Platform Default Read Write Read Only Blocked

OK

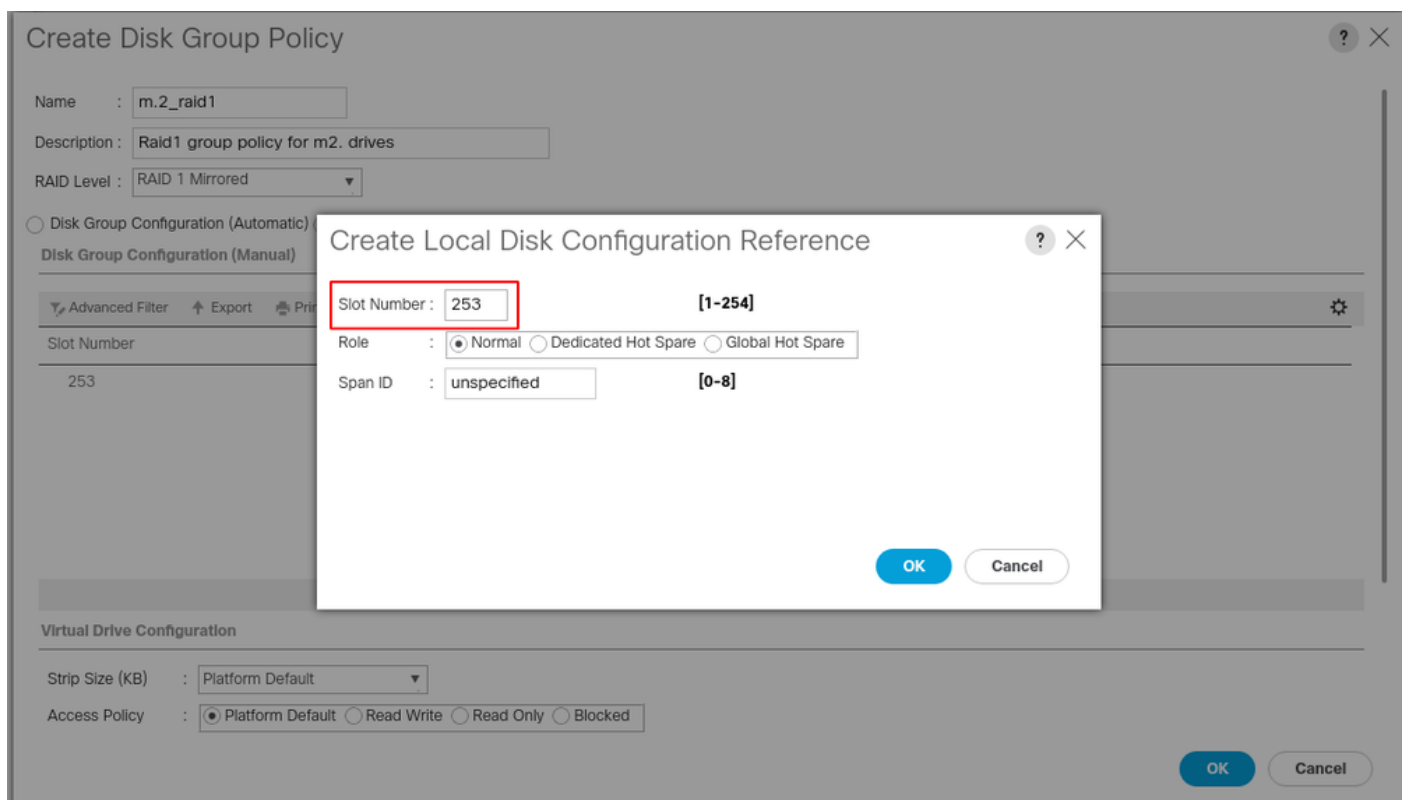
Cancel

单击“Disk Group Configuration(手动)”框中的“Add Button”。

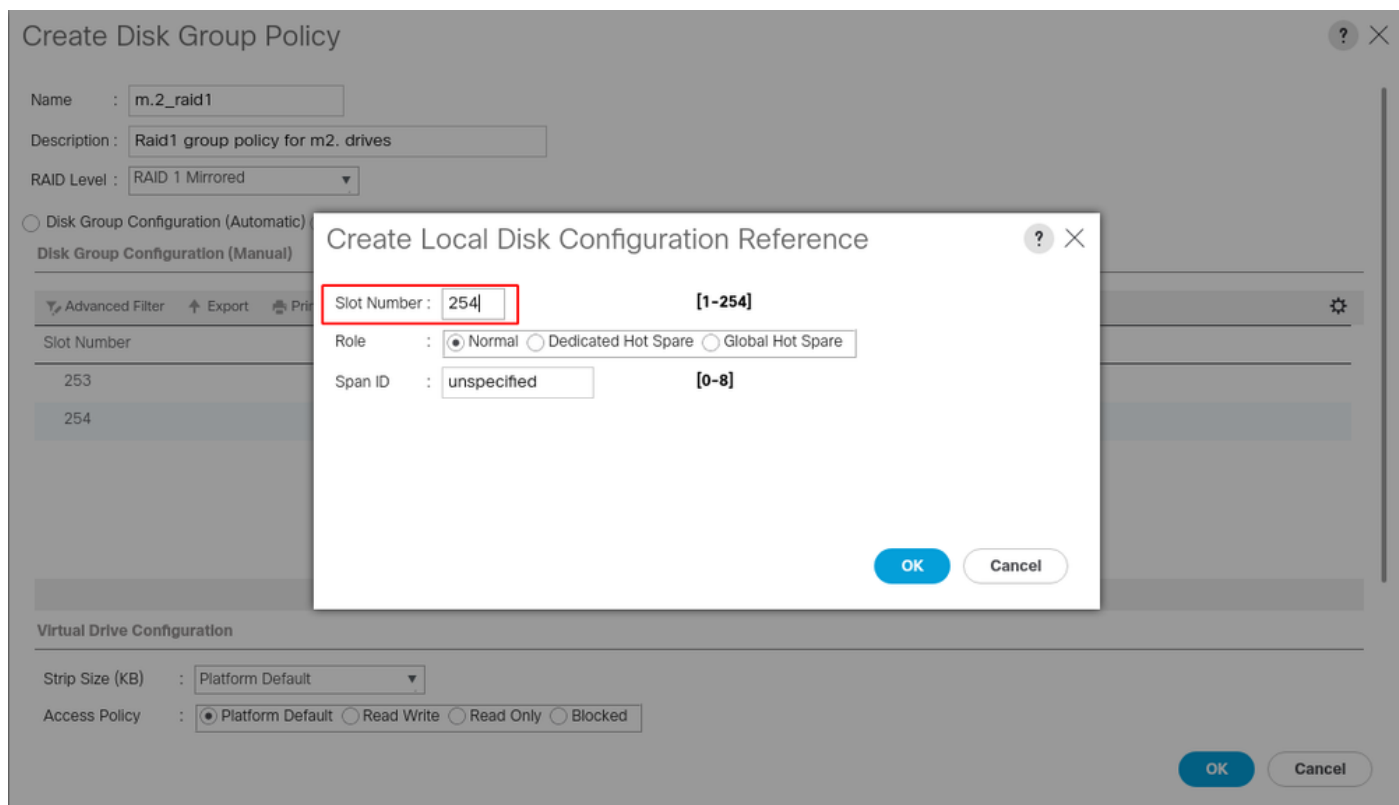
这将打开一个新窗口“创建本地磁盘配置参考”。

- 插槽编号可设置为253(前m.2的ID。此值可在先决条件中检查)
- 角色必须为正常
- 将Span ID保留为未指定

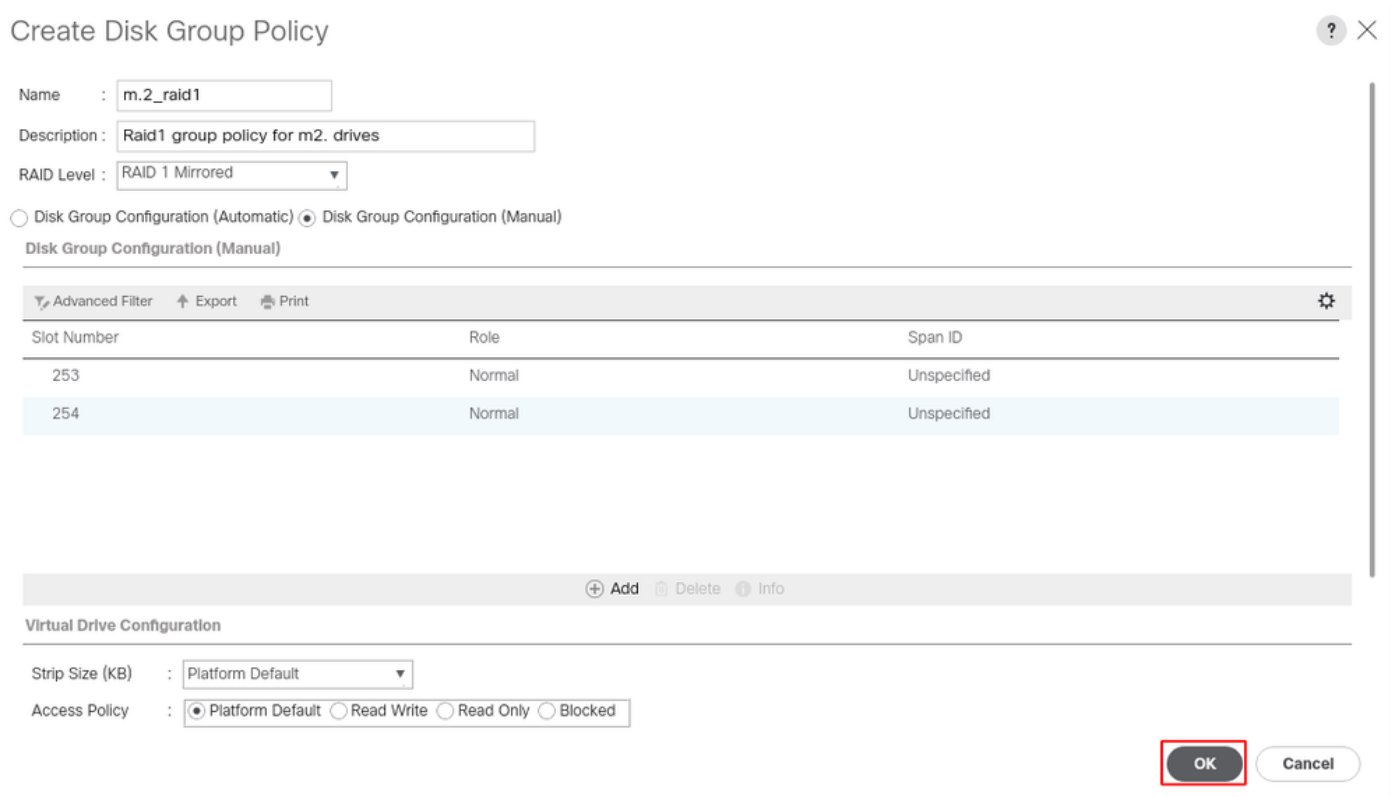
单击OK(确定)，如此图所示。



对另一个磁盘重复上一步，但使用插槽编号**254**，如下图所示。



现在，您的磁盘策略必须如下所示：



2. 创建存储配置文件。

导航到**存储>存储配置文件>创建存储配置文件**，如此图所示。

All

▼ Storage

▼ Storage Profiles

▼ root

▶ Sub-Organizations

▼ Storage Policies

▼ root

▶ Disk Group Policies

▶ Sub-Organizations

Storage / Storage Profiles

Getting Started All

Storage Profiles

A storage profile encapsulates the storage requirements for one or more service profiles and can include:

1. Local LUNs, which are configured using a local RAID controller in a UCS blade or rack-mount server.

LUNs configured in a storage profile can be used as boot or shared among multiple servers for clustered applications.

Using Storage Profiles

1. Create a [Storage Profile](#)
2. Create a [Service Profile](#)

Assign the storage profile to the service profile

“创建存储配置文件”窗口打开，要求：

- 名称：输入逻辑名称
- 说明 (可选)
- 单击“添加”按钮，如此图所示。

Create Storage Profile



Name :

Description :

LUNs

Local LUNs LUN Set Controller Definitions Security Policy

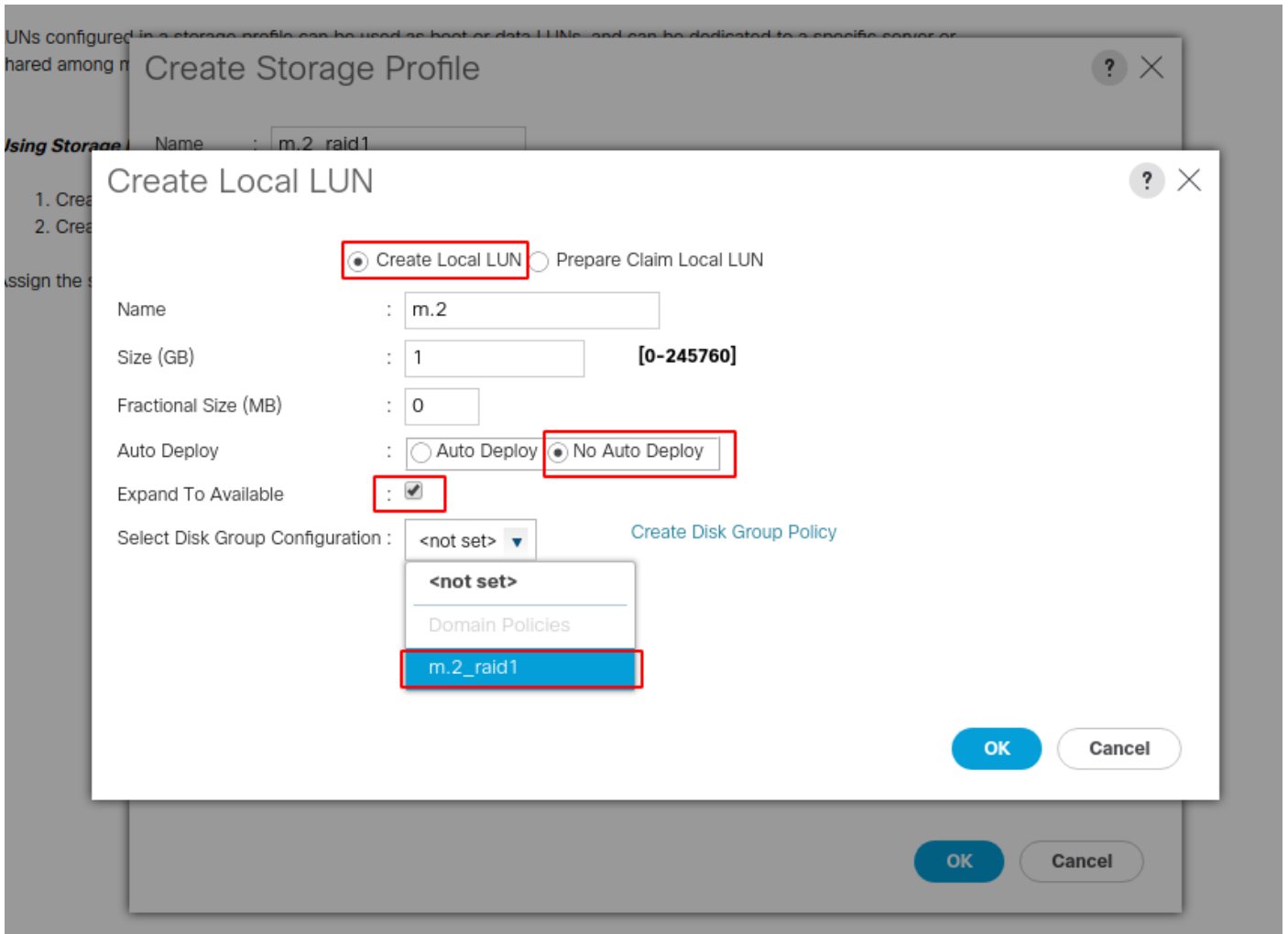
Advanced Filter Export Print

Name	Size (GB)	Order	Fractional Size (MB)
No data available			

Add Delete Info

在创建本地LUN窗口中：

- 选择**创建本地LUN**单选按钮
- 为LUN命名（我使用m.2）
- 将大小设置为1
- 设置小数0
- 选择是否要让LUN自动部署（如果选择否，则必须在每个服务配置文件上手动启用LUN）
- 勾选**展开到可用框(Expand to Available)**
- 选择之前进行的磁盘组配置
- 单击**OK**(如下图所示)



您的存储配置文件现在必须如下所示：

Create Storage Profile



Name :

Description :

LUNs

Local LUNs LUN Set Controller Definitions Security Policy

Advanced Filter Export Print

Name	Size (GB)	Order	Fractional Size (MB)
m.2	1	Not Applicable	0

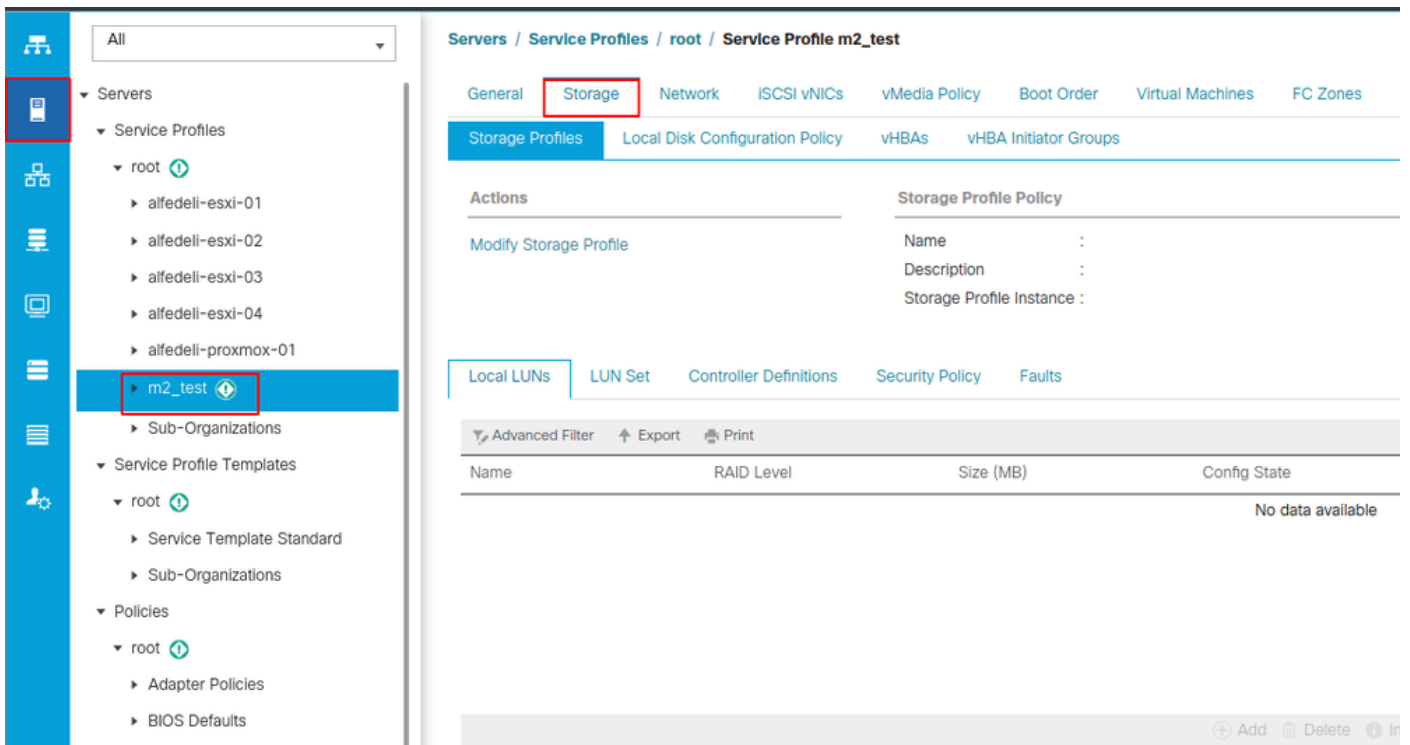
Add Delete Info

OK Cancel

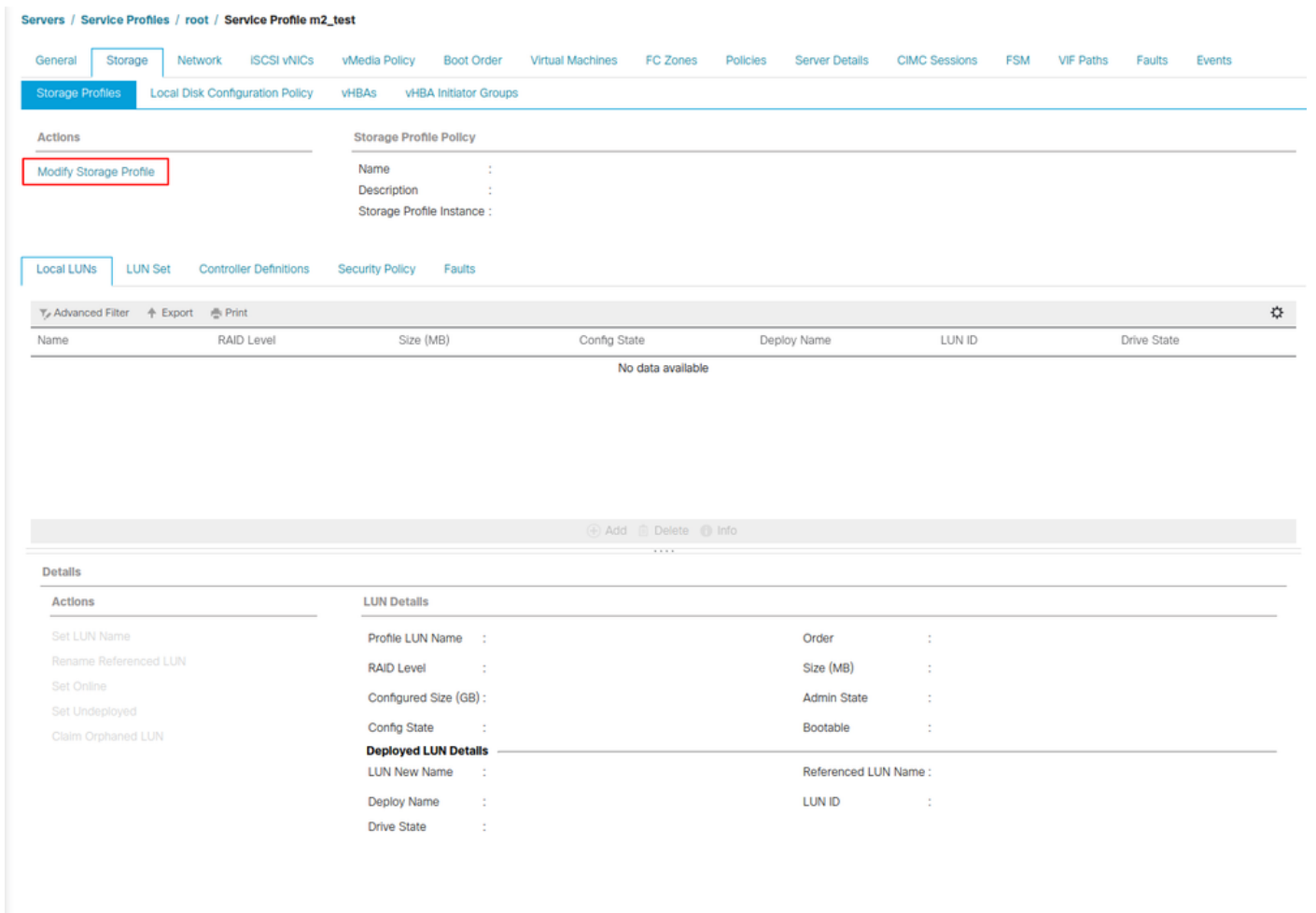
单击**OK**，您会收到一条消息，说明存储配置文件已成功创建。按**OK**以清除该消息。

3.应用存储配置文件

导航至**服务器>服务配置文件**并选择您的服务配置文件。单击服务配置文件顶部的**存储**选项卡，如此图所示。

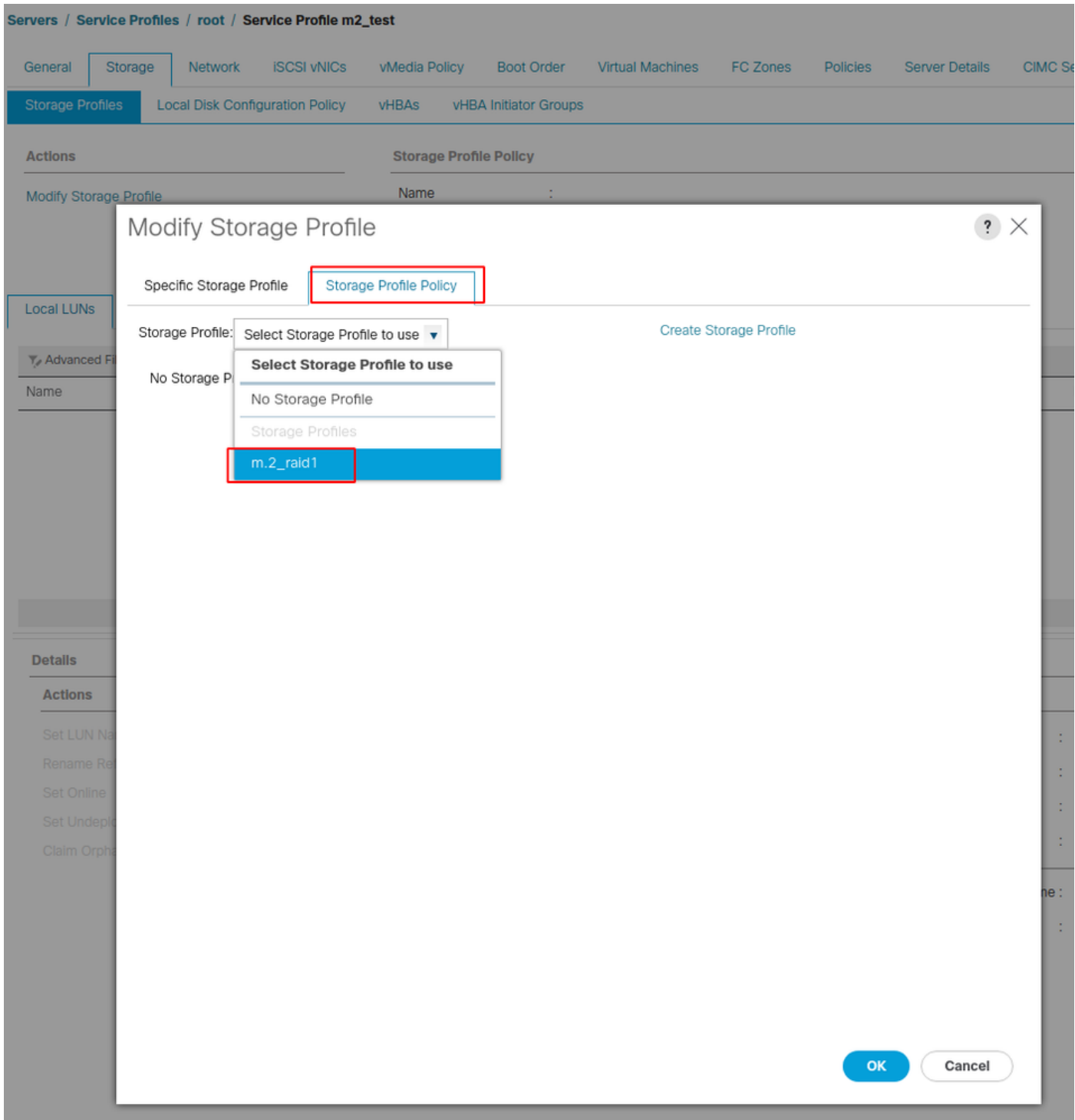


选择如下图所示的修改存储配置文件链接。



在修改存储配置文件窗口：

- 选择存储配置文件策略选项卡
- 在“存储配置文件”下拉列表中，选择之前创建的配置文件，如下图所示



您的窗口现在必须如下所示：

Modify Storage Profile



Specific Storage Profile

Storage Profile Policy

Storage Profile: m.2_raid1

[Create Storage Profile](#)

Name : **m.2_raid1**

Description : **Profile for m.2 raid1 storage**

LUNs

Local LUNs

LUN Set

Controller Definitions

Security Policy

Advanced Filter Export Print

Name	Size (GB)	Order	Fractional Size (MB)
m.2	1	Not Applicable	0

OK

Cancel

Servers / Service Profiles / root / Service Profile m2_test

General Storage Network iSCSI vNICs vMedia Policy Boot Order Virtual Machines FC Zones Policies Server Details CIMC Sessions FSM VIF Paths Faults Events

Storage Profiles Local Disk Configuration Policy vHBAs vHBA Initiator Groups

Actions Storage Profile Policy

Modify Storage Profile Name : **m.2_raid1**
 Description : **Profile for m.2 raid1 storage**
 Storage Profile Instance : org-root/profile-m.2_raid1

Local LUNs LUN Set Controller Definitions Security Policy Faults

Advanced Filter Export Print

Name	RAID Level	Size (MB)	Config State	Deploy Name	LUN ID	Drive State
m.2	RAID 1 Mirrored	0	Not Applied			

+ Add - Delete Info

Details

Actions	LUN Details
Set LUN Name	Profile LUN Name : m.2
Rename Referenced LUN	RAID Level : RAID 1 Mirrored
Set Online	Configured Size (GB) : 1
Set Undeployed	Config State : Not Applied
Claim Orphaned LUN	Deployed LUN Details
	LUN New Name : Referenced LUN Name :
	Deploy Name : LUN ID :
	Drive State :

在窗口上选择“确定”，然后选择“成功”。

如果启用或禁用了自动部署，请确保本地LUN设置为联机。要在线设置LUN，请单击“在线设置”按钮，如下图所示。

Servers / Service Profiles / root / Service Profile m2_test

General Storage Network iSCSI vNICs vMedia Policy Boot Order Virtual Machines FC Zones Policies Server Details CIMC Sessions FSM VIF Paths Faults Events

Storage Profiles Local Disk Configuration Policy vHBAs vHBA Initiator Groups

Actions Storage Profile Policy

Modify Storage Profile Name : **m.2_raid1**
 Description : **Profile for m.2 raid1 storage**
 Storage Profile Instance : org-root/profile-m.2_raid1

Local LUNs LUN Set Controller Definitions Security Policy Faults

Advanced Filter Export Print

Name	RAID Level	Size (MB)	Config State	Deploy Name	LUN ID	Drive State
m.2	RAID 1 Mirrored	0	Not Applied			

+ Add - Delete Info

Details

Actions	LUN Details
Set LUN Name	Profile LUN Name : m.2
Rename Referenced LUN	RAID Level : RAID 1 Mirrored
Set Online	Configured Size (GB) : 1
Set Undeployed	Config State : Not Applied
Claim Orphaned LUN	Deployed LUN Details
	LUN New Name : Referenced LUN Name :
	Deploy Name : LUN ID :
	Drive State :
	Order : Not Applicable
	Size (MB) : 0
	Admin State : Undeployed
	Bootable : Disabled

Details

Actions

Set LUN Name

Rename Referenced LUN

Set Online

Set Undeployed

Claim Orphaned LUN

LUN可能需要一分钟的时间来初始化并联机。

LUN联机后，将显示“已应用配置”状态和“最佳驱动器”状态。

4. 检验LUN。

在服务配置文件的“常规”选项卡下，单击关联服务器的链接，如下图所示。

Servers / Service Profiles / root / Service Profile m2_test

General Storage Network iSCSI vNICs vMedia Policy Boot Order Virtual Machines FC Zones Policies Server Details CIMC Sessions FSM VIF Paths Faults Events

Fault Summary

0 0 0 1

Status

Overall Status : **Config**

+ Status Details

Actions

- Set Desired Power State
- Boot Server
- Shutdown Server
- Reset
- KVM Console >>
- SSH to CIMC for SoL >>
- Rename Service Profile
- Create a Clone
- Create a Service Profile Template
- Disassociate Service Profile
- Change Service Profile Association
- Unbind from the Template
- Bind to a Template
- Reapply Configuration
- Change Maintenance Policy
- Set UUID Sync Behavior
- Change UUID
- Reset UUID
- Change Management IP Address
- Reset Management IP Address
- Delete Inband Configuration
- Modify vNIC/vHBA Placement
- Start Fault Suppression
- Stop Fault Suppression
- Suppression Task Properties
- Delete

Properties

Pending Activities

Reboot now

Pending Disruptions : **defaultValue**

Pending Changes : **operational-policies**

+ Details

Name : **m2_test**

User Label :

Description :

Asset Tag :

Owner : **Local**

Unique Identifier : **d81b94dc-8601-11e9-0000-00000000001f**

UUID Pool : **alfedell_prod**

UUID Pool Instance : **org-root/uuid-pool-alfedell_prod**

Associated Server : **sys/chassis-1/blade-6**

Service Profile Template :

Template Instance :

+ Assigned Server or Server Pool

+ Management IP Address

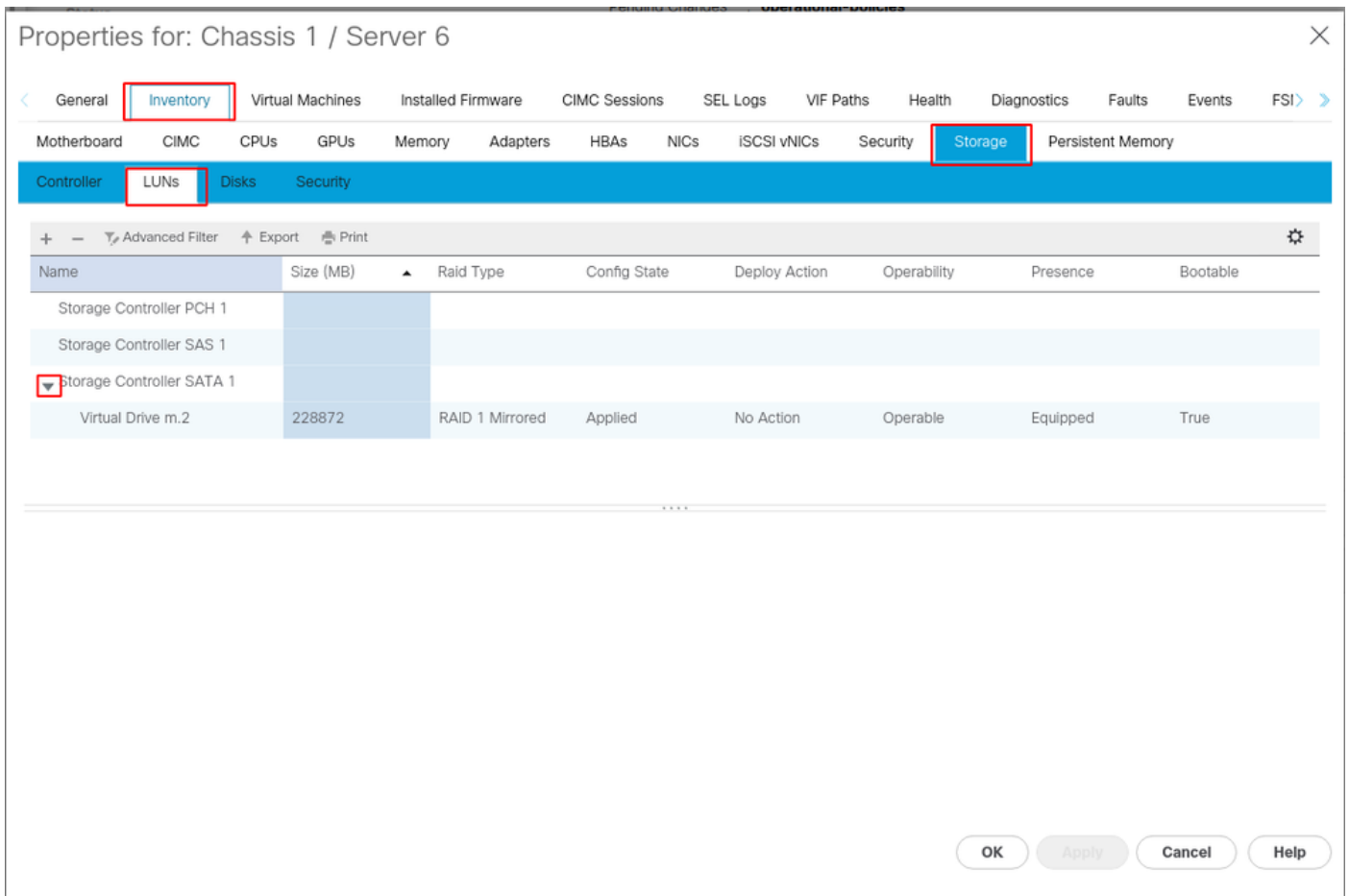
+ Maintenance Policy

Save Changes Reset Values

导航到**资产>存储>LUN**。

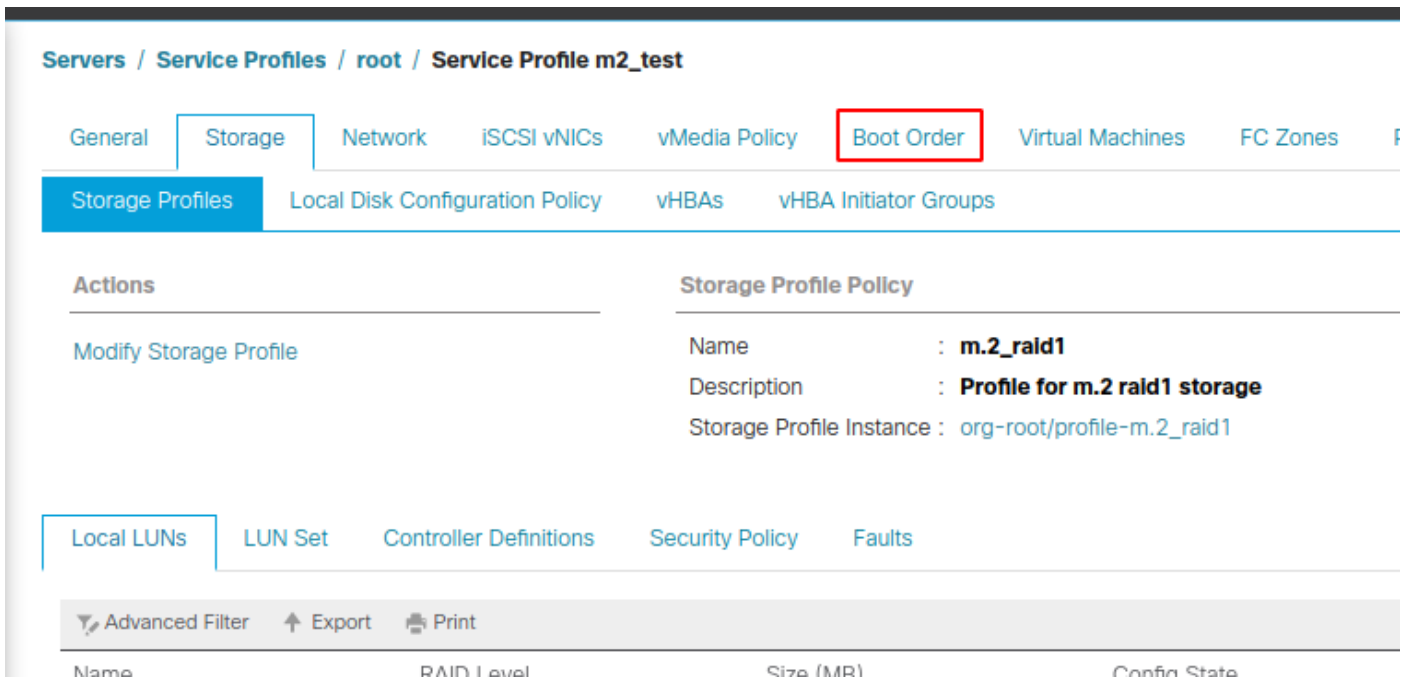
选择存储控制器SATA 1左侧的**下拉箭头**。您必须看到**虚拟驱动器[驱动器配置文件名称]**

驱动器必须已自动配置其大小，并处于**可操作、已配备和可启动**状态，如本图所示。



5. 设置引导顺序以引导m.2阵列。

在服务配置文件中，选择引导顺序选项卡，如此映像所示。



将启动策略设置为使用Uefi。在安装介质（如果有）后，选择“添加本地磁盘”选项。以下是引导策略可能不完全匹配的示例：

Boot Policy: Specific Boot Policy

[Create Boot Policy](#)

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
- Add Floppy
 - Add Local Floppy
 - Add Remote Floppy
- Add Remote Virtual Drive
- Add NVMe

+ CIMC Mounted vMedia

Boot Order

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.

Name	Order	vNIC/v...	Type	LUN Na...	WWN	Slot Nu...	Boot N...	Boot Pa...	Descrip...
CD/DVD	1								
Local Disk	2								

↑ Move Up ↓ Move Down Delete

OK **Cancel**

您可能需要重新启动主机才能应用配置。这会将存储配置文件中的“可启动”字段从“禁用”更改为“启用”。

验证

选中Inventory > Storage > LUN > Config State is Applied

故障排除

本部分提供了可用于对配置进行故障排除的信息。

找到孤立的LUN后，选择该LUN并将其删除。这将删除阵列上存在的任何和所有数据，如此图所示。

- All
- Equipment
- Chassis 1
 - Fans
 - IO Modules
 - PSUs
 - Servers
 - Server 2
 - Server 3
 - Server 4
 - Server 5
 - Server 6
 - Server 7
- Rack-Mounts
- Enclosures
- FEX
- Servers
- Fabric Interconnects
 - Fabric Interconnect A (primary)
 - Fabric Interconnect B (subordinate)
- Policies
 - Port Auto-Discovery Policy

Controller LUNs Disks Security

Name	Size (MB)	Raid Type	Config State	Deploy Action	Operability	Presence	Bootable
Storage Controller PCH 1							
Storage Controller SAS 1							
Storage Controller SATA 1							
Virtual Drive m.2	228872	RAID 1 Mirrored	Orphaned	No Action	Operable	Equipped	True

Actions

- Rename
- Delete
- Set Transport Ready
- Hide Virtual Drive
- Clear Transport Ready
- Unhide Virtual Drive
- Secure Virtual Drive

Properties

Virtual Drive Name	: m.2	Size (MB)	: 228872
Type	: RAID 1 Mirrored	Block Size	: 512
Available Size on Disk Group (MB)	: 0	Number of Blocks	: 468729856
ID	: 1000	Drive Security	: No
Oper Device ID	: 0	Drive State	: Optimal
Strip Size (KB)	: 64	Access Policy	: Read Write
Read Policy	: Normal	Actual Write Cache Policy	: Write Through
IO Policy	: Direct	Configured Write Cache Policy	: Write Through
Bootable	: True	Drive Cache	: No Change
States			
Operability	: Operable	Oper Qualifier Reason	: N/A
Config State	: Orphaned	Deploy Action	: No Action
Storage			
LUN Name	:		
Profile Name	:		
Assigned To Server	:		
Service Profile	:		
Available Size On Disk Group (MB)	: 0		
Drive Members			

Slot ID	Slot	Role	Presence	Span ID	Operability Qualifier Reason
253		Normal	Equipped	Unspecified	N/A
254		Normal	Equipped	Unspecified	N/A