Configure UCS-M2-HWRAID on UCS Blades

Contents

Introduction

This document describes how to configure the Unified Computing System (UCS)-M2-HWRAID so an operating system (OS) can use the disks for storage or as bootable disks.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- UCS M5 Server
- UCSM 3.2.2b or higher
- Compatible OS in UEFI Mode (minimums follow) CentOS 7.6ESXi 6.5U2RHEL 7.6WinServer 2016 WinServer 2019More: UCS Hardware and Software Compatibility **Adapters > RAID > Cisco Boot Optimized M.2 HW Raid Controller (Cisco)**

Components Used

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

- UCS-M2-HWRAID
- 2x m.2 Drives of the same model and capacity

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

The UCS-M2-HWRAID holds two m.2 gumsticks; one on each side of the carrier. The UCS-M2-

HWRAID and UCS-MSTOR-M2 look similar but in this configuration example hardware RAID requires a UCS-M2-HWRAID controller.

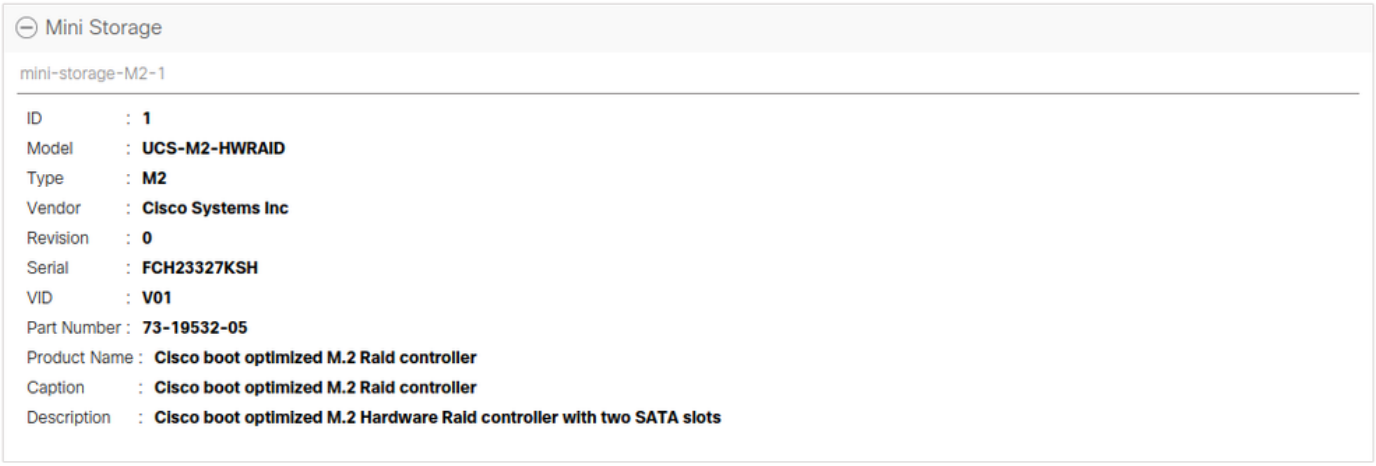
Configure

Check Current Status

1. Check that the necessary parts show in the server's inventory.

In UCSM, navigate to **Equipment > Chassis x > Servers > Server x**.

Select the **Inventory** tab at the top, **Motherboard**. Select **Mini Storage**. Ensure that your Model shows as **UCS-M2-HWRAID** as shown in this image.

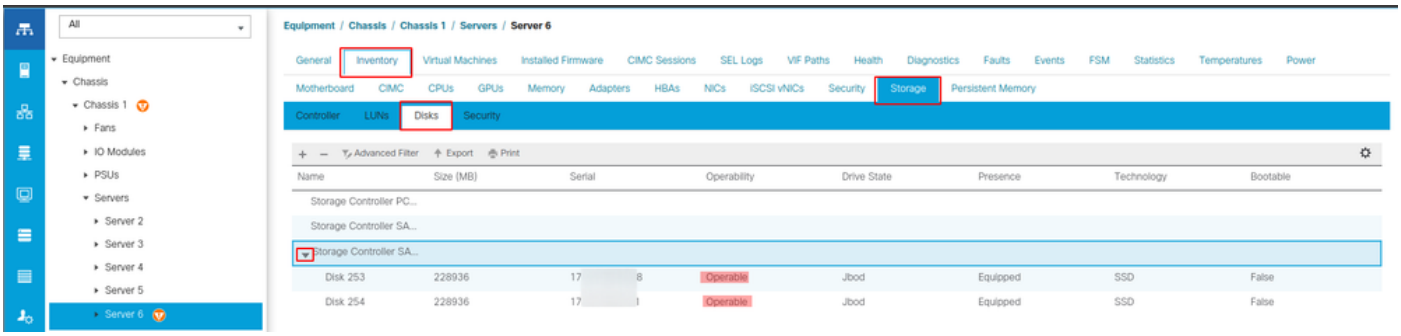


2. Check that there are two m.2 drives installed and detected.

Navigate to **Inventory > Storage > Disks**.

From the drop-down, select **Storage Controller Sata 1**.

Check what two m.2 disks (253 & 254) are presented, and are in an operable state. On M6 the two m.2 disks will be 245 and 246. The drive state can differ.

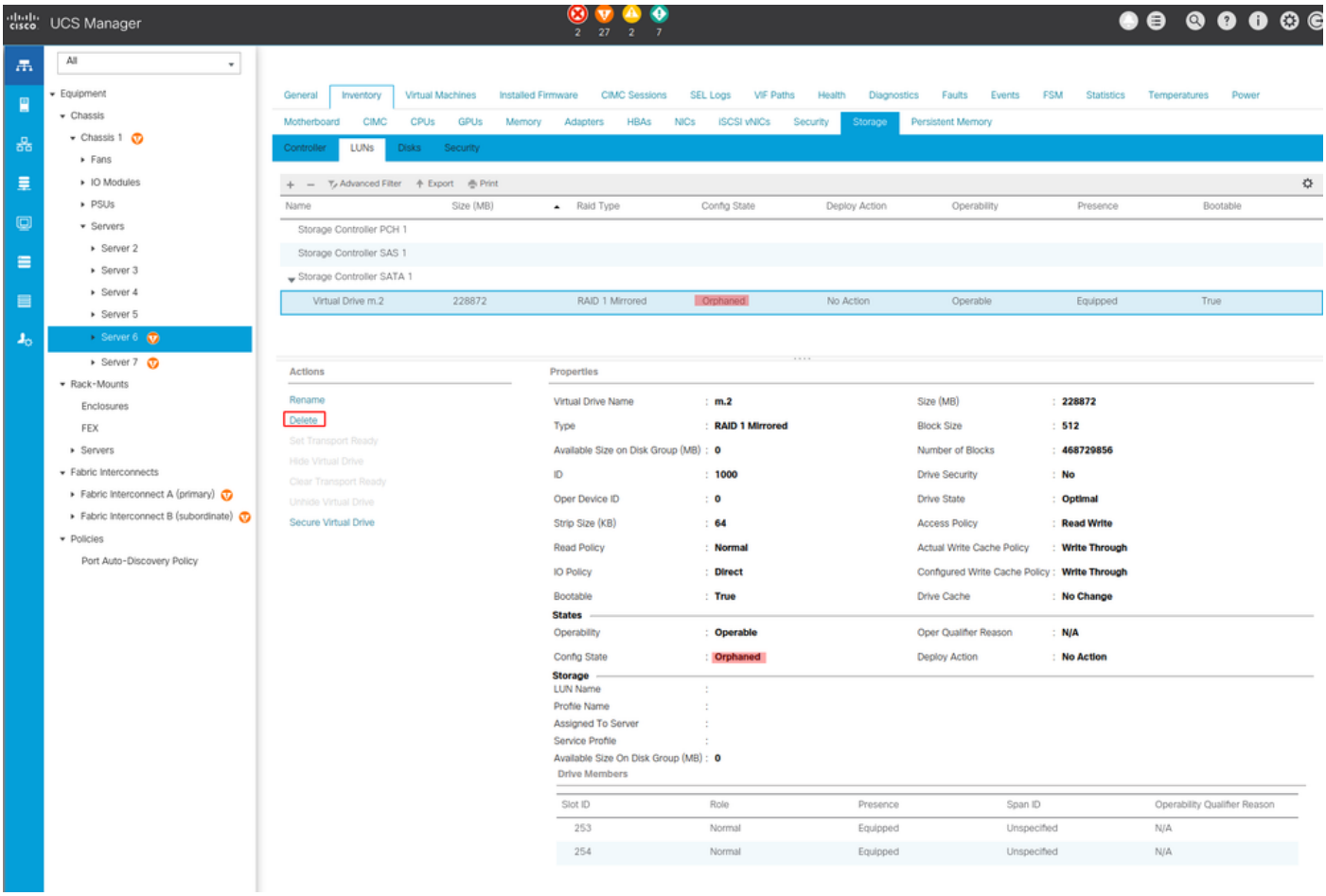


3. Check for any orphaned LUNs.

Navigate to **Inventory> Storage> LUNs**.

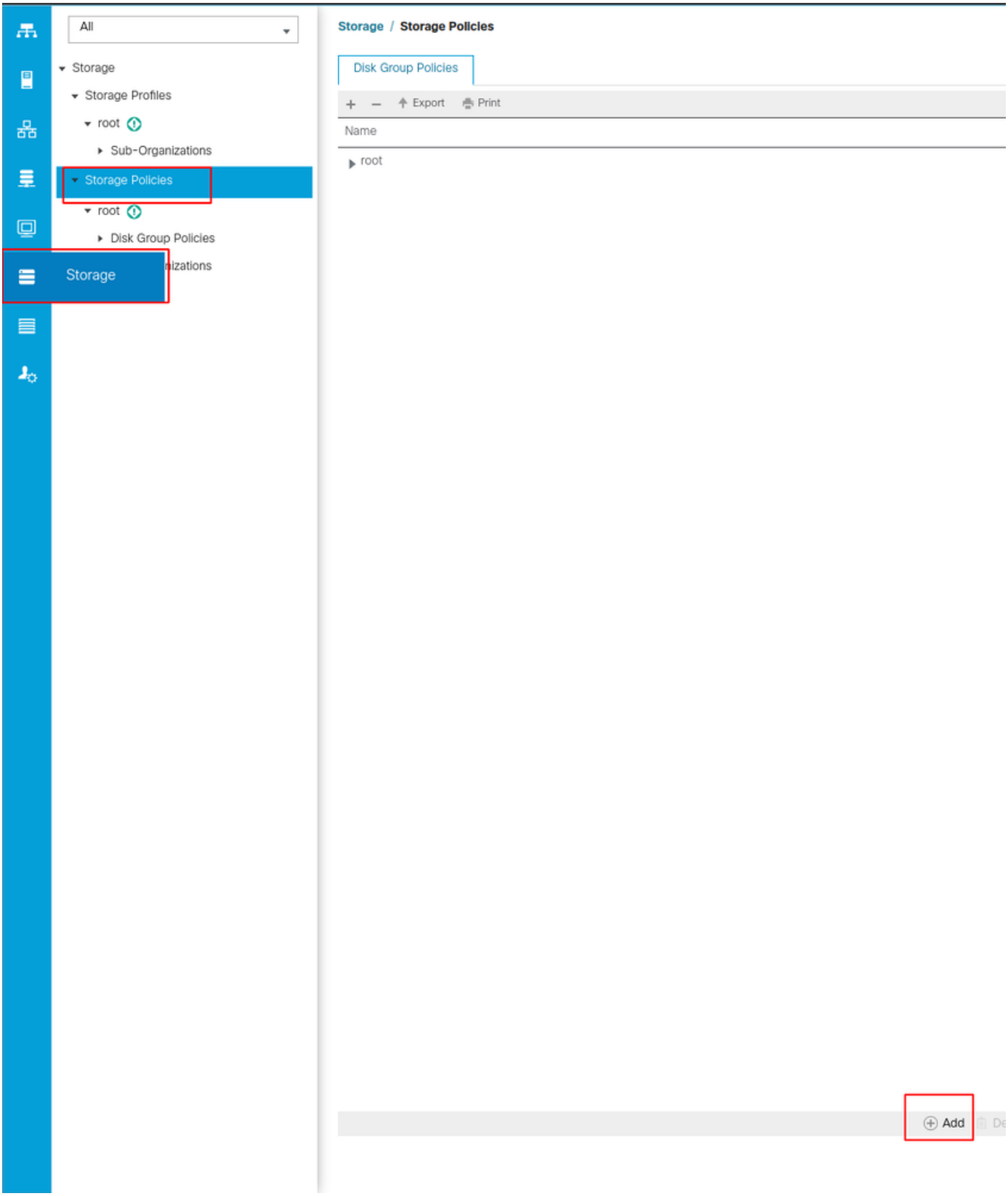
Check if there is a drop-down arrow for **Storage Controller SATA 1**. If not, there is not an orphaned LUN.

If you see an orphaned LUN, skip to the Troubleshooting section at the bottom before you begin the configuration.



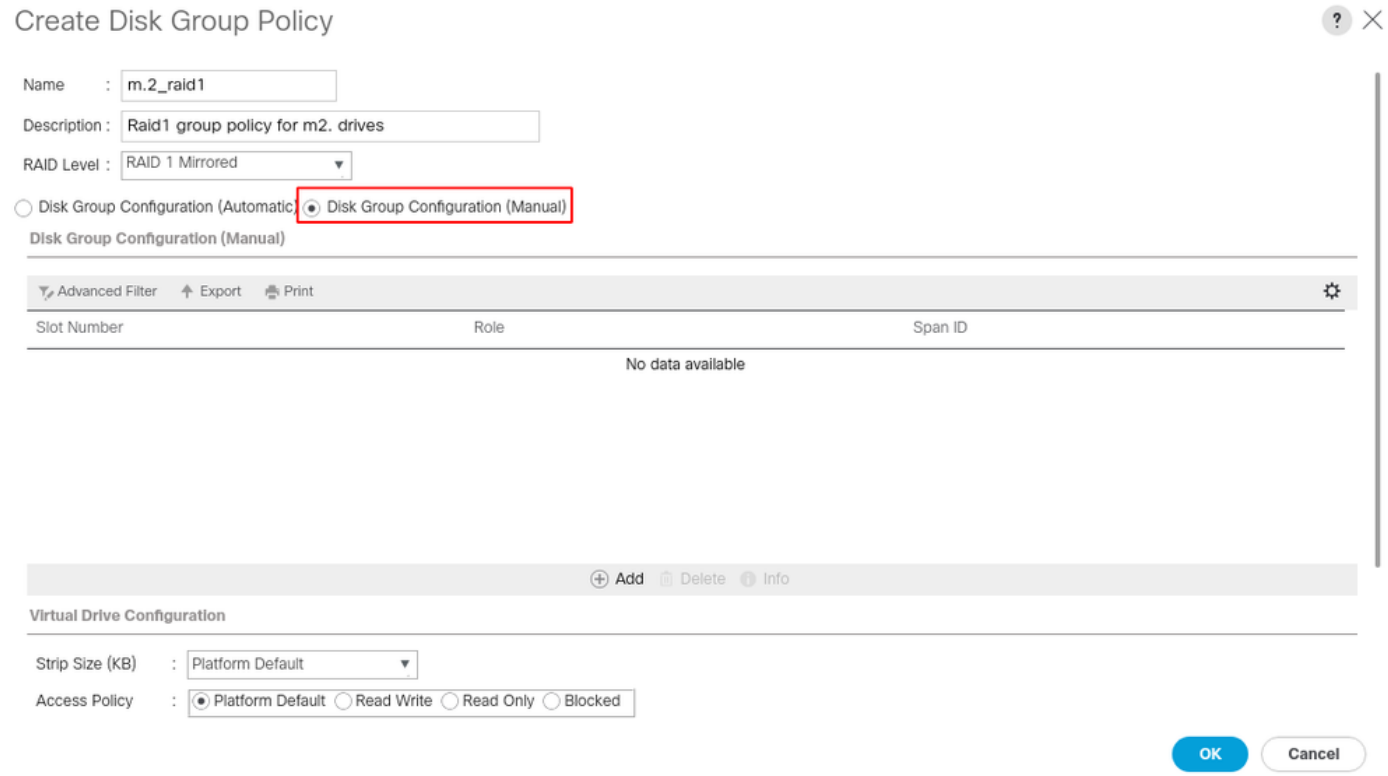
Setup Storage Configuration

1. First, you need to make a storage policy. Navigate **Storage > Storage Policies > Add** as shown in the image.



In the **Create Disk Group Policy** window:

- Enter a name
- Description (optional)
- RAID Level RAID1 Mirrored is used in this guide and is the safest option.
- Select the **Disk Group Configuration** Manual Radio Button.

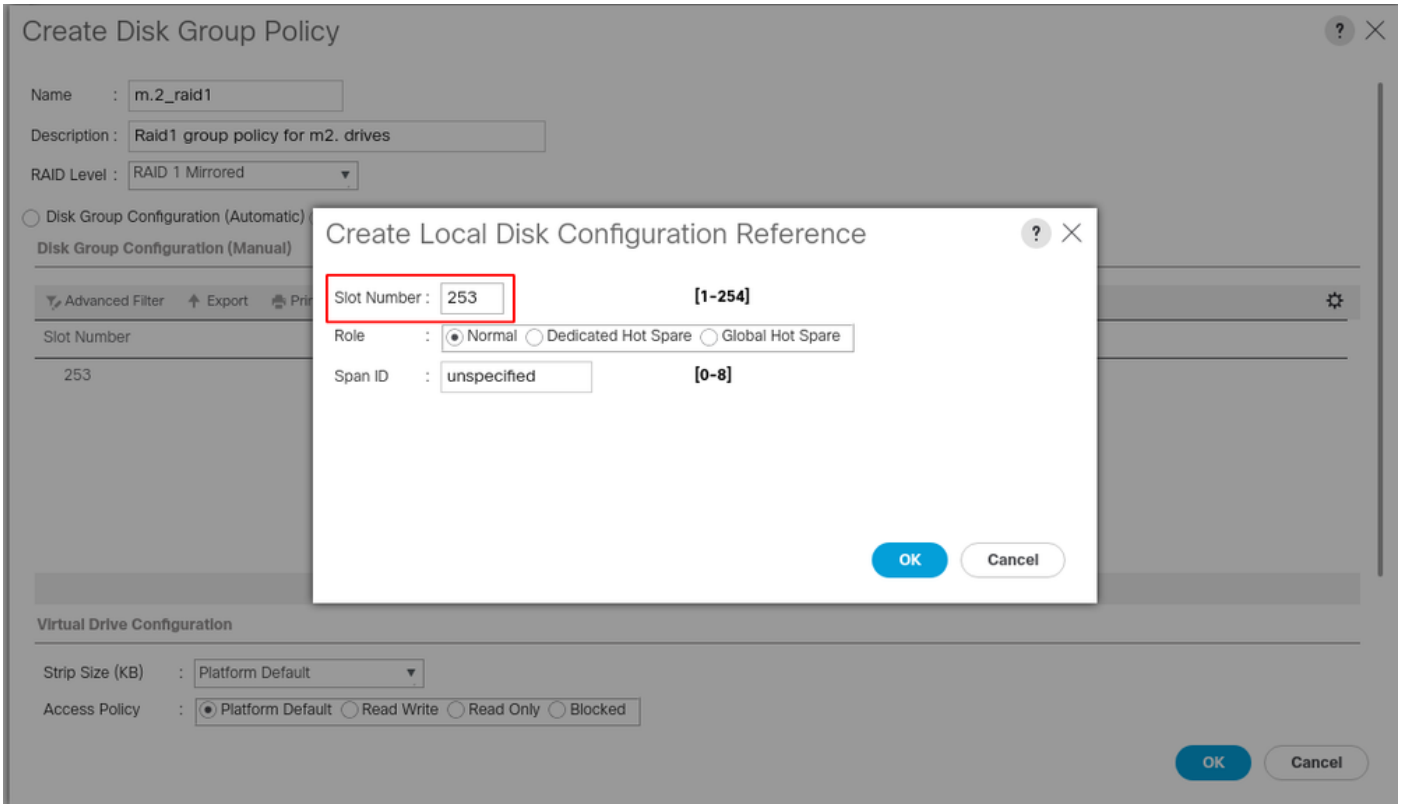


Click the **Add Button** in the **Disk Group Configuration** (Manual) box.

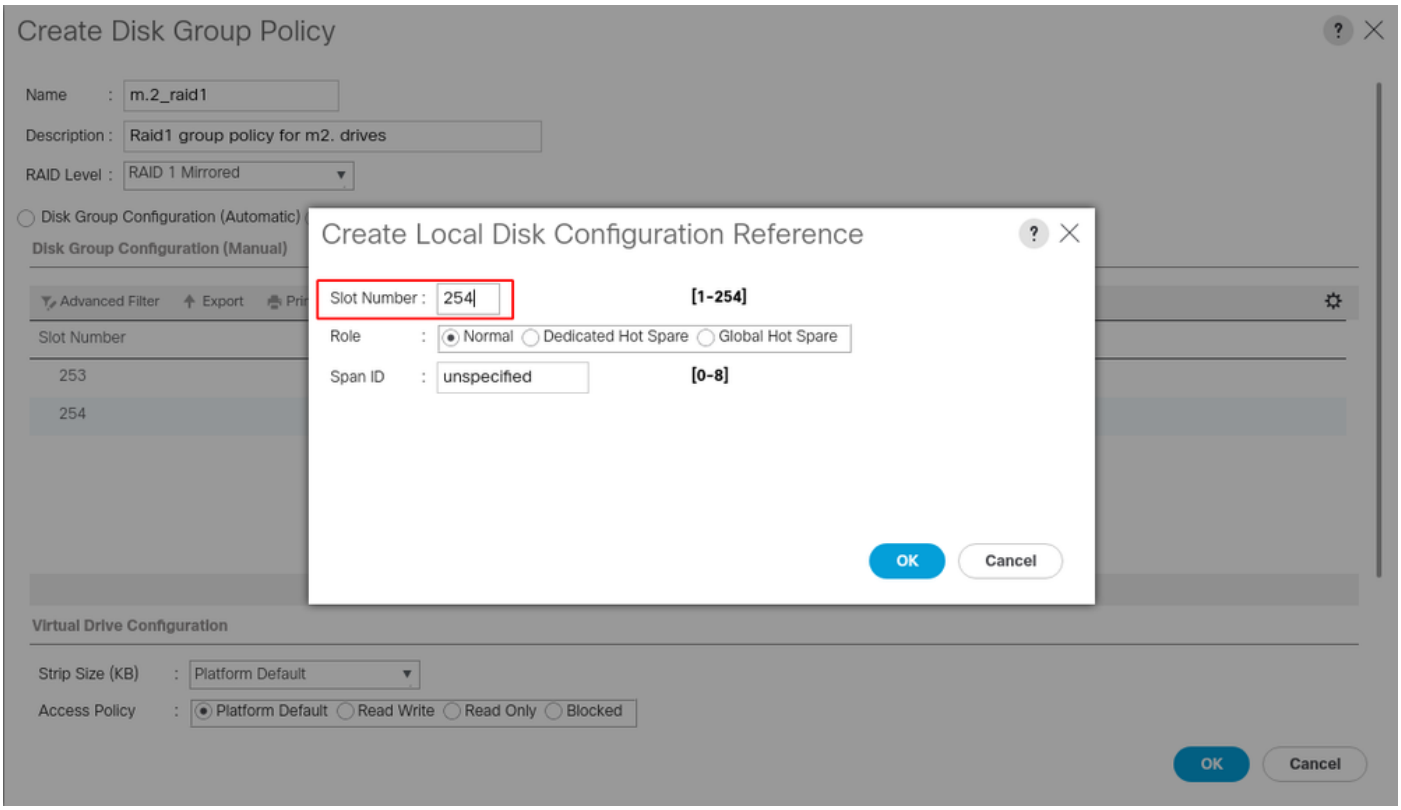
This opens a new window **Create Local Disk Configuration Reference**.

- Slot Number can be set to 253 (the ID of the first m.2. This value can be checked in the prerequisites)
- The role must be **Normal**
- Leave the Span ID as **unspecified**

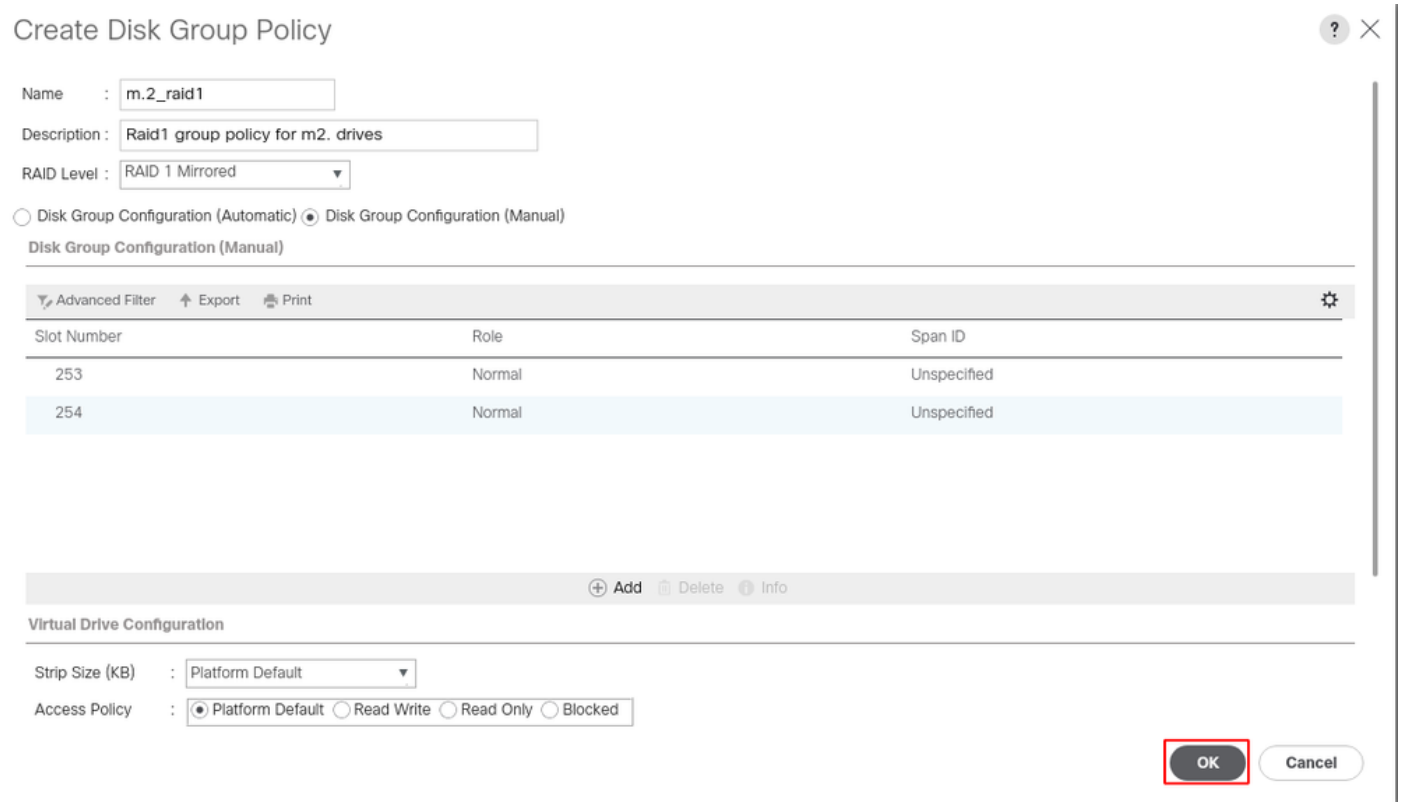
Click **OK** as shown in this image.



Repeat the last step for the other disk, but use slot number **254** as shown in this image.

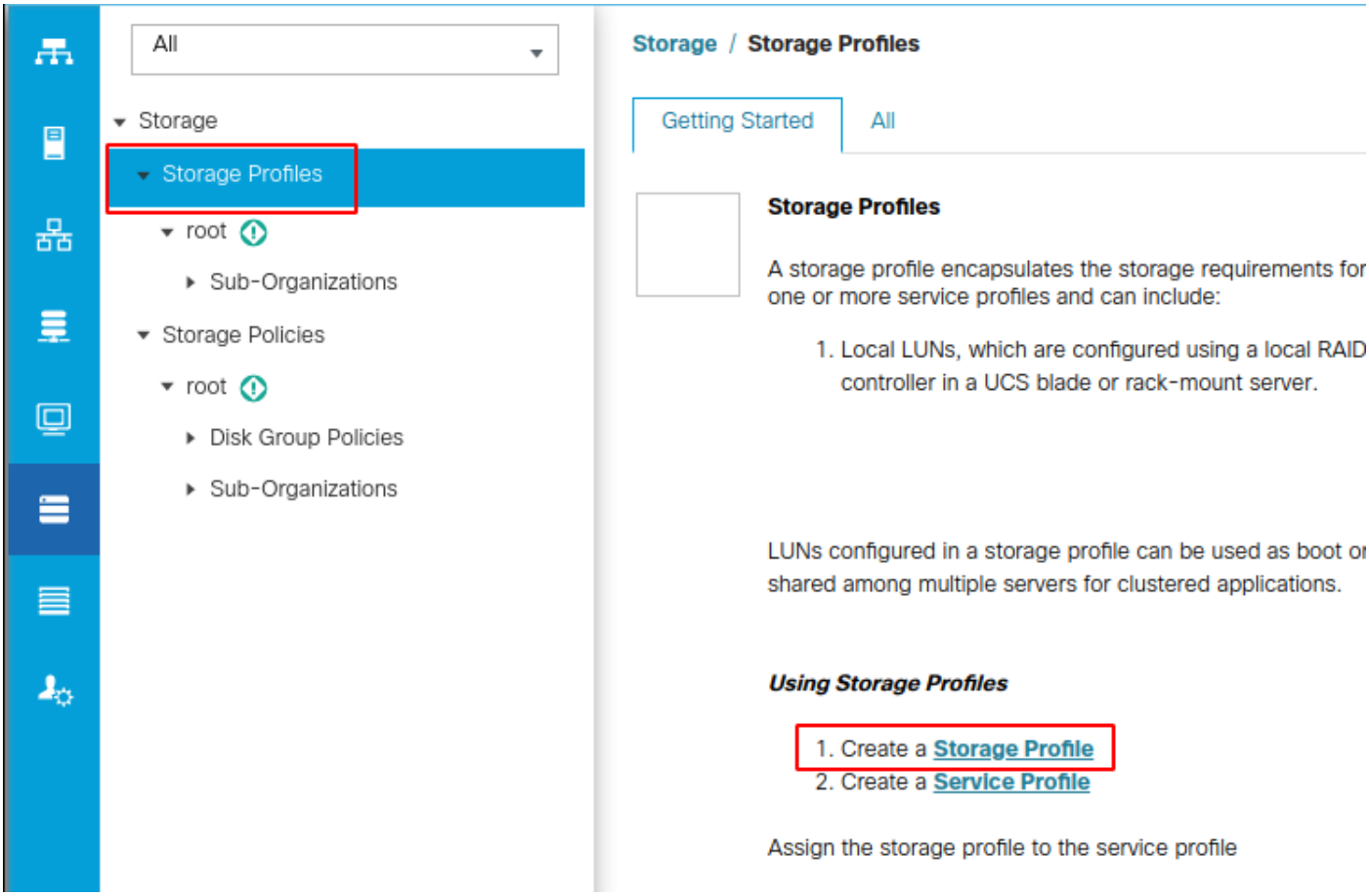


Now your Disk Policy must look like this:



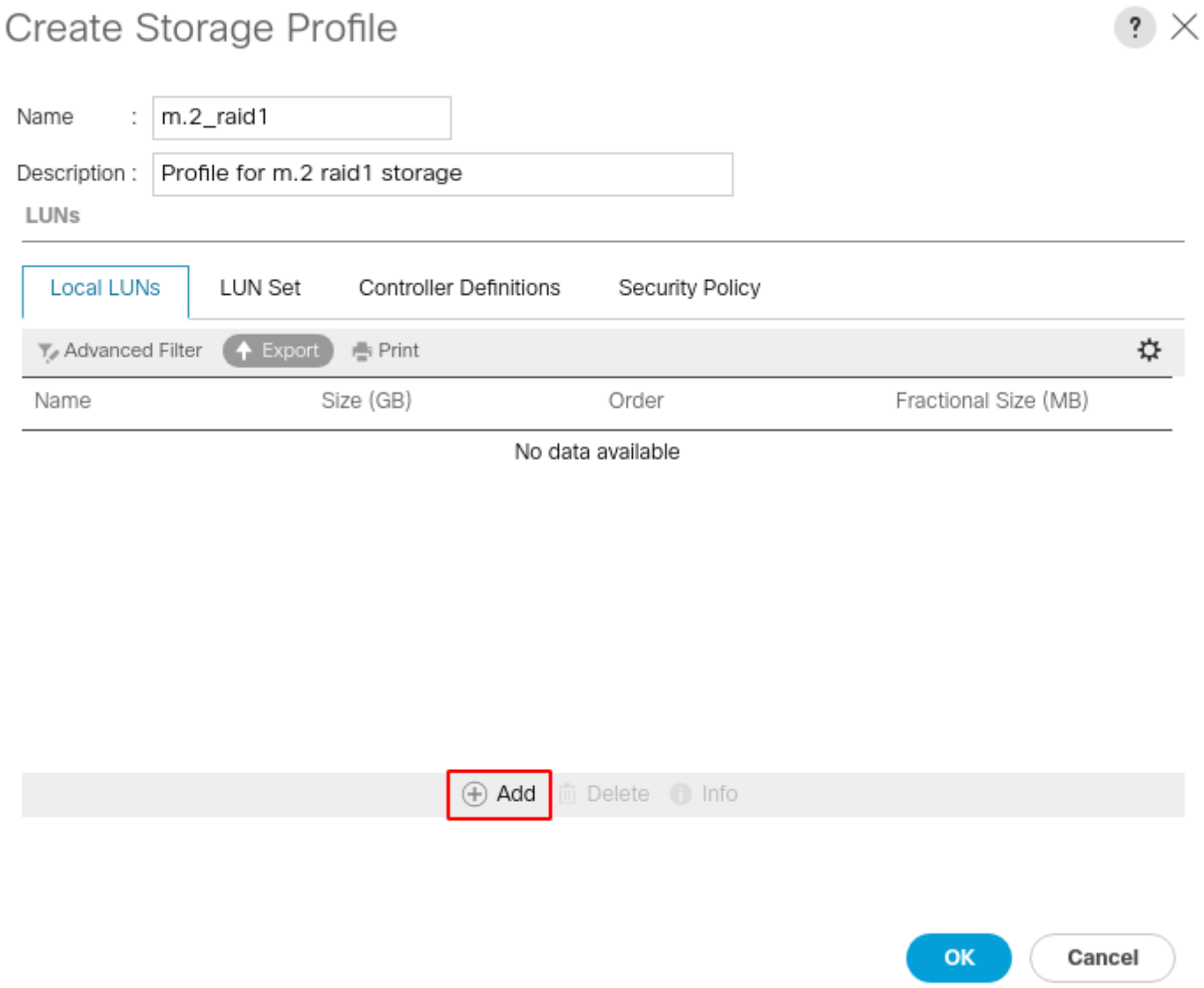
2. Make a Storage Profile.

Navigate to **Storage > Storage Profiles > Create a Storage Profile** as shown in this image.



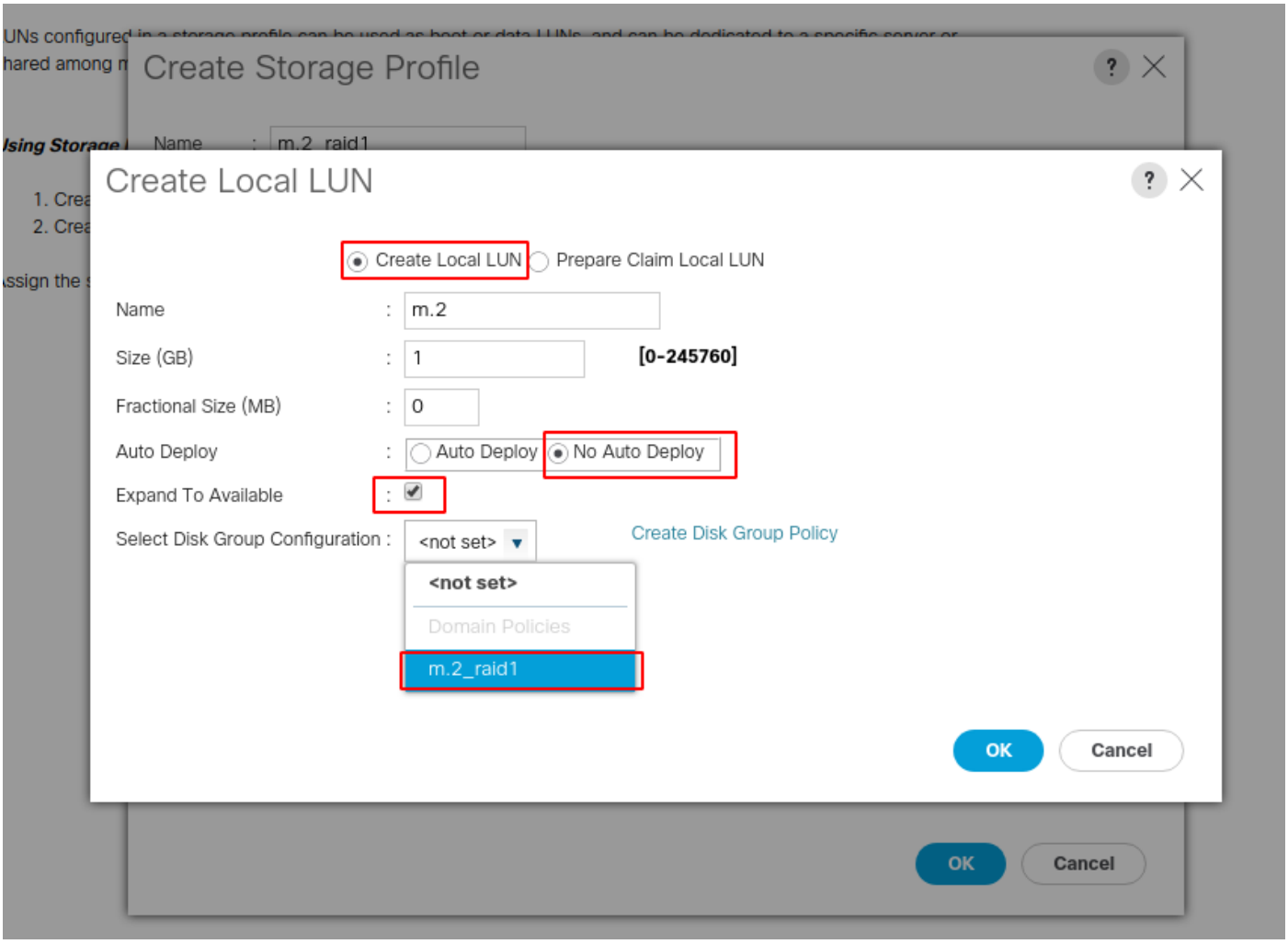
A **Create Storage Profile** window opens that asks for:

- Name: Enter a logical name
- Description (optional)
- Click the **Add** button as shown in this image.

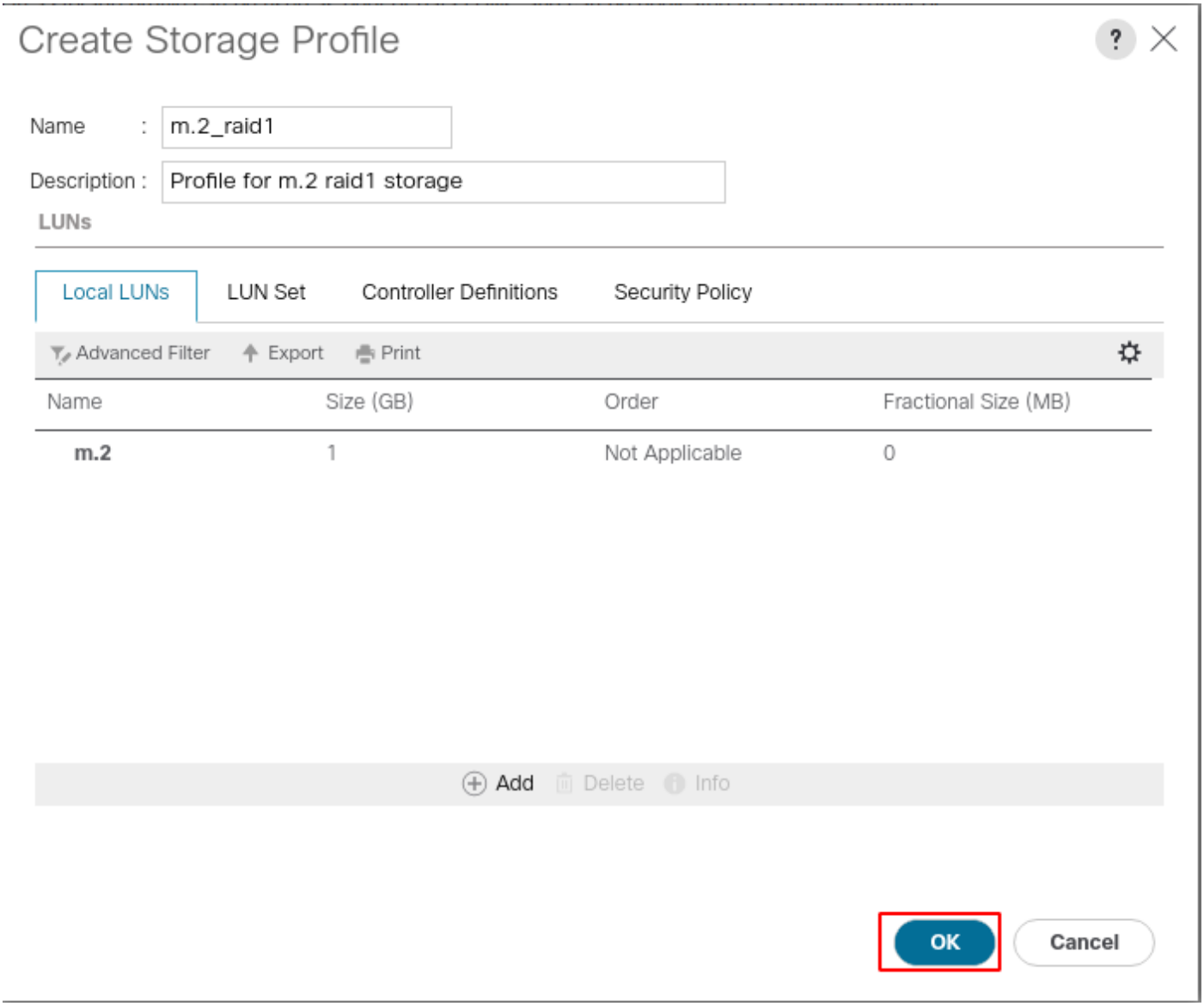


In the **Create Local LUN** window:

- Select the **Create Local LUN** radio button
- Give the LUN a name (I used m.2)
- Set the Size to 1
- Set the Fractional Size 0
- Select if you would like to have the LUN auto-deploy (if you select no you have to manually enable the LUN on each service profile)
- Tick the **Expand to Available** box
- Select the previously made disk group configuration
- Click **OK** as shown in this image



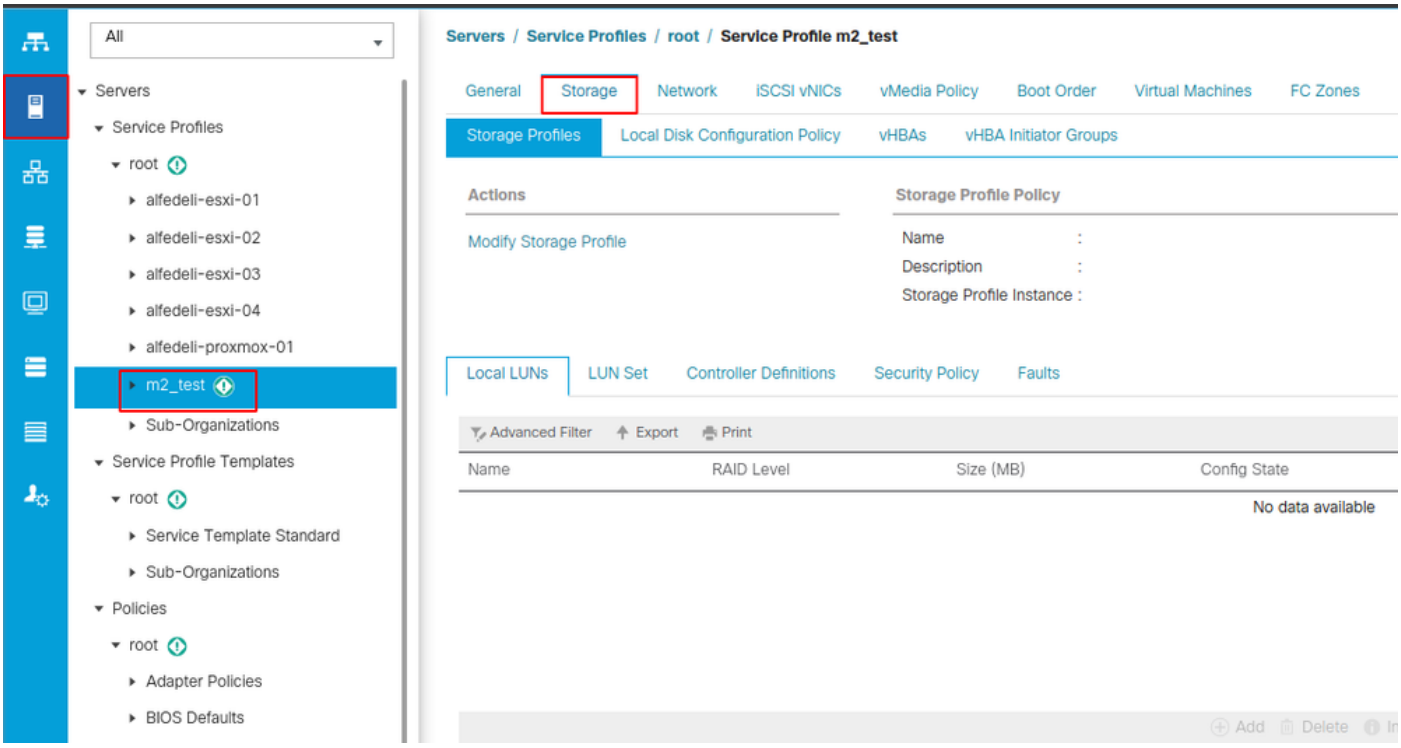
Your Storage Profile must now look like this:



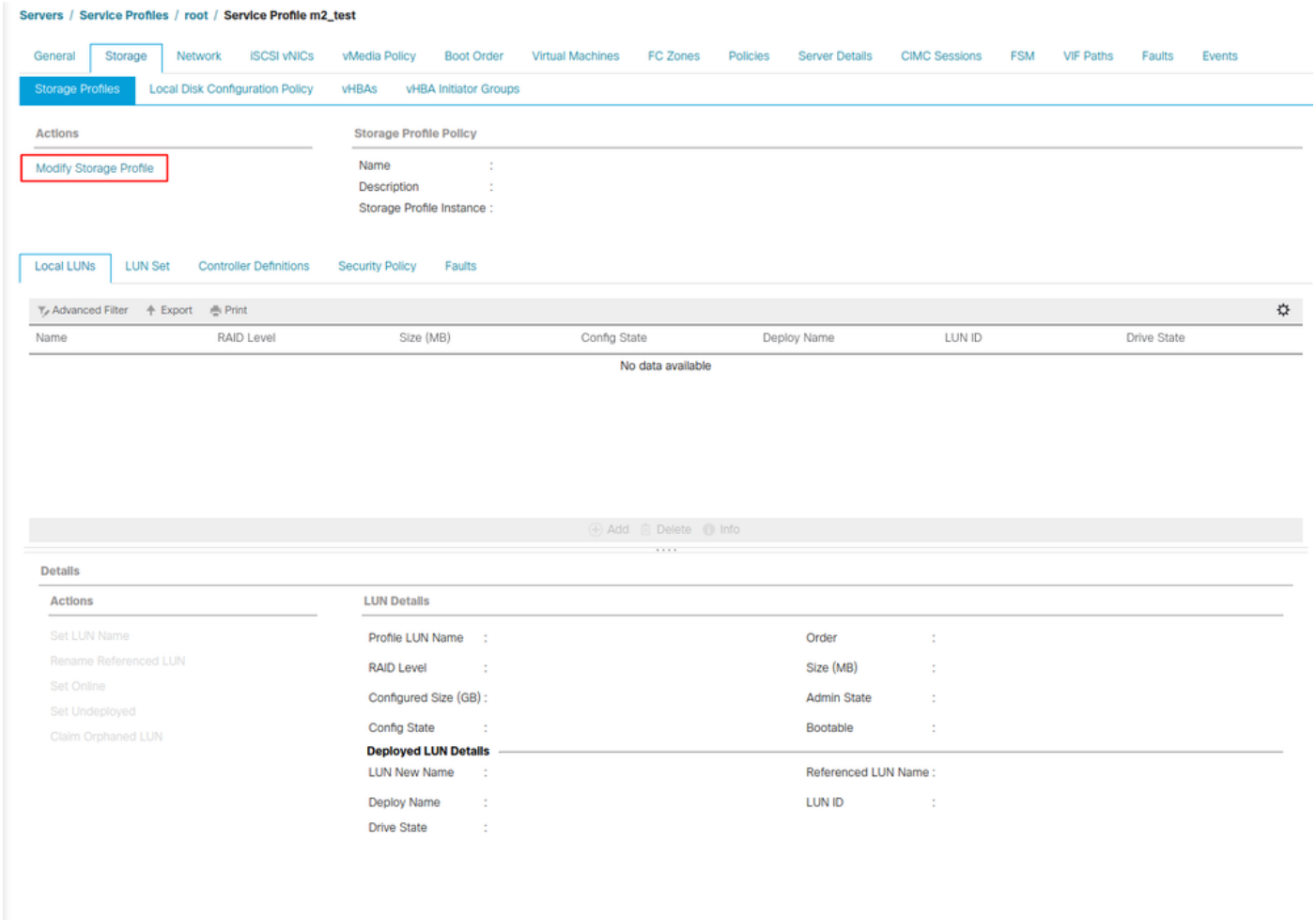
Click **OK** and you get a message that says the storage profile was successfully created. Push **OK** on that message to clear it.

3. Apply the Storage Profile

Navigate to **Servers > Service Profiles** and select your service profile. Click the **Storage** tab at the top of the service profile as shown in this image.

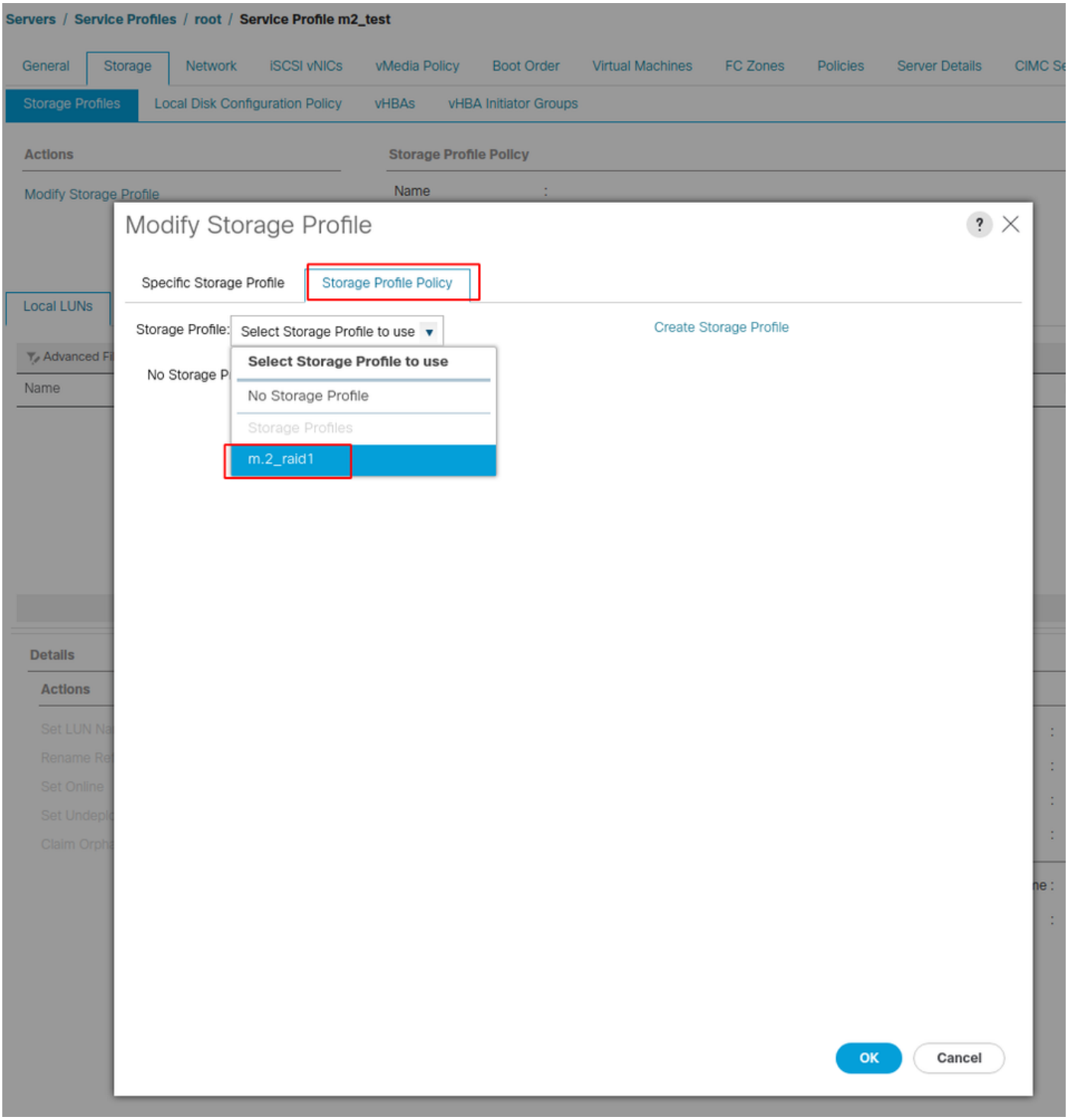


Select the **Modify Storage Profile** link as shown in this image.

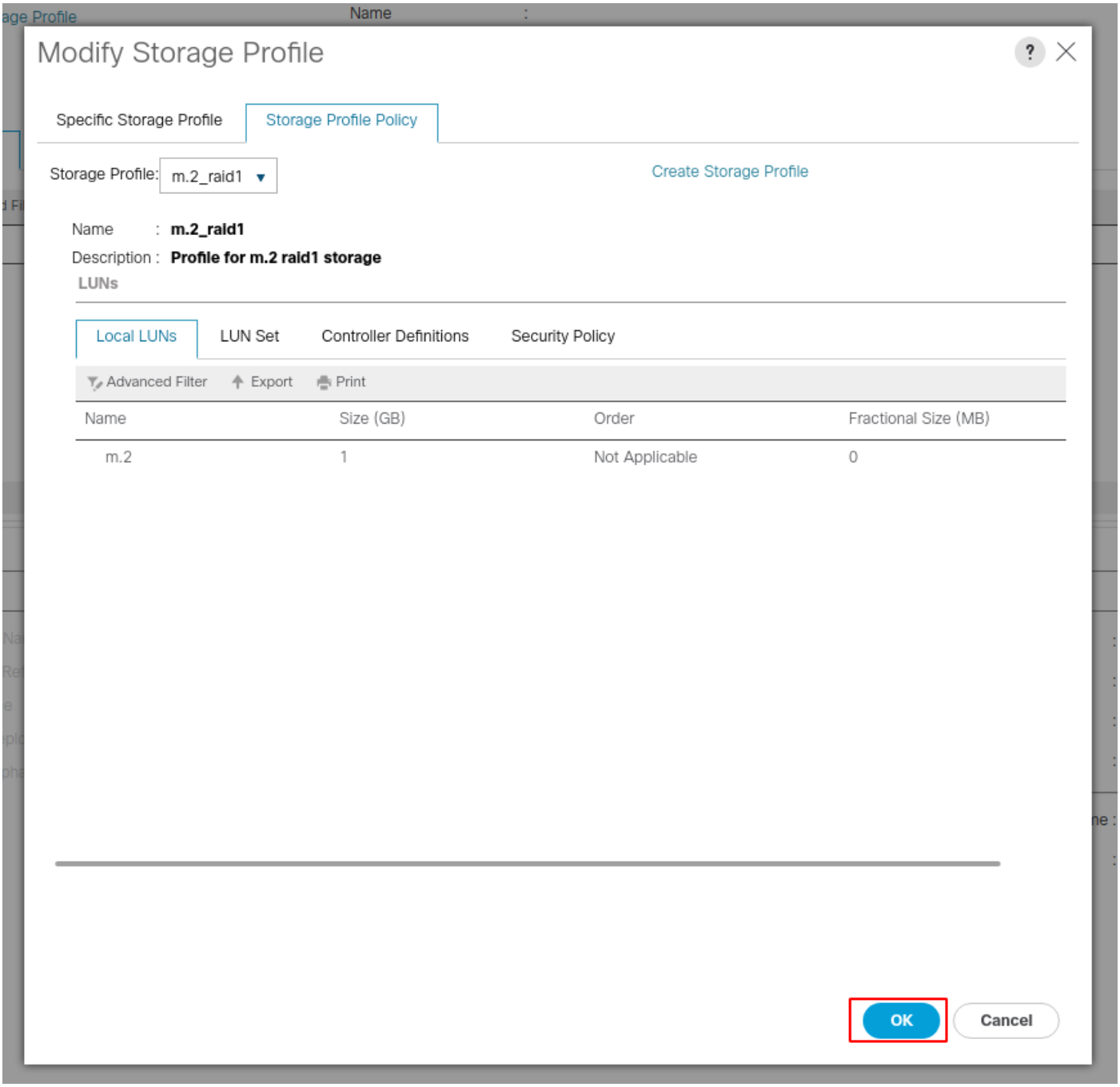


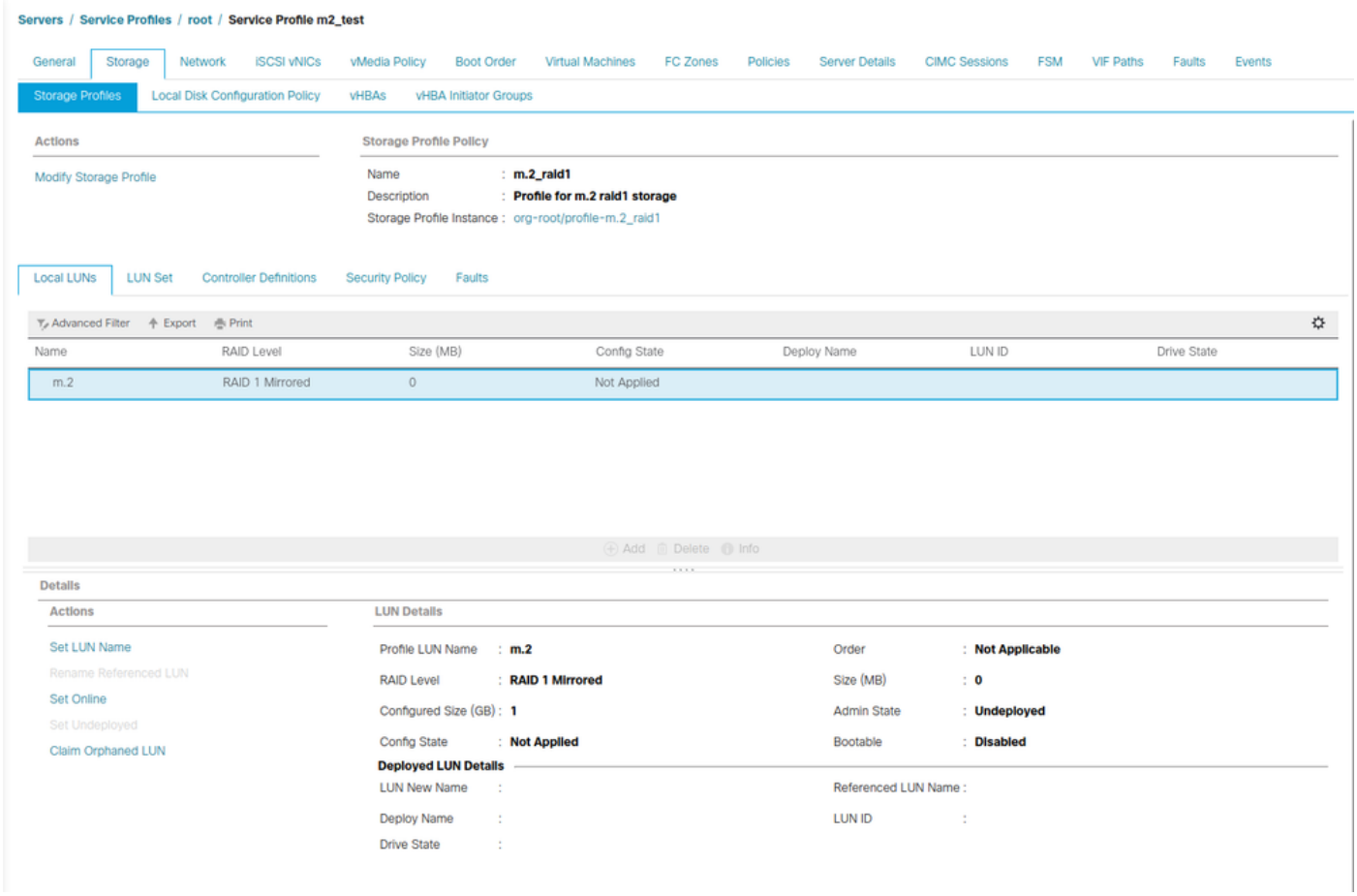
In the **Modify Storage Profile** Window:

- Select the **Storage Profile Policy** tab
- In the **Storage Profile** dropdown, select the previously created profile as shown in this image



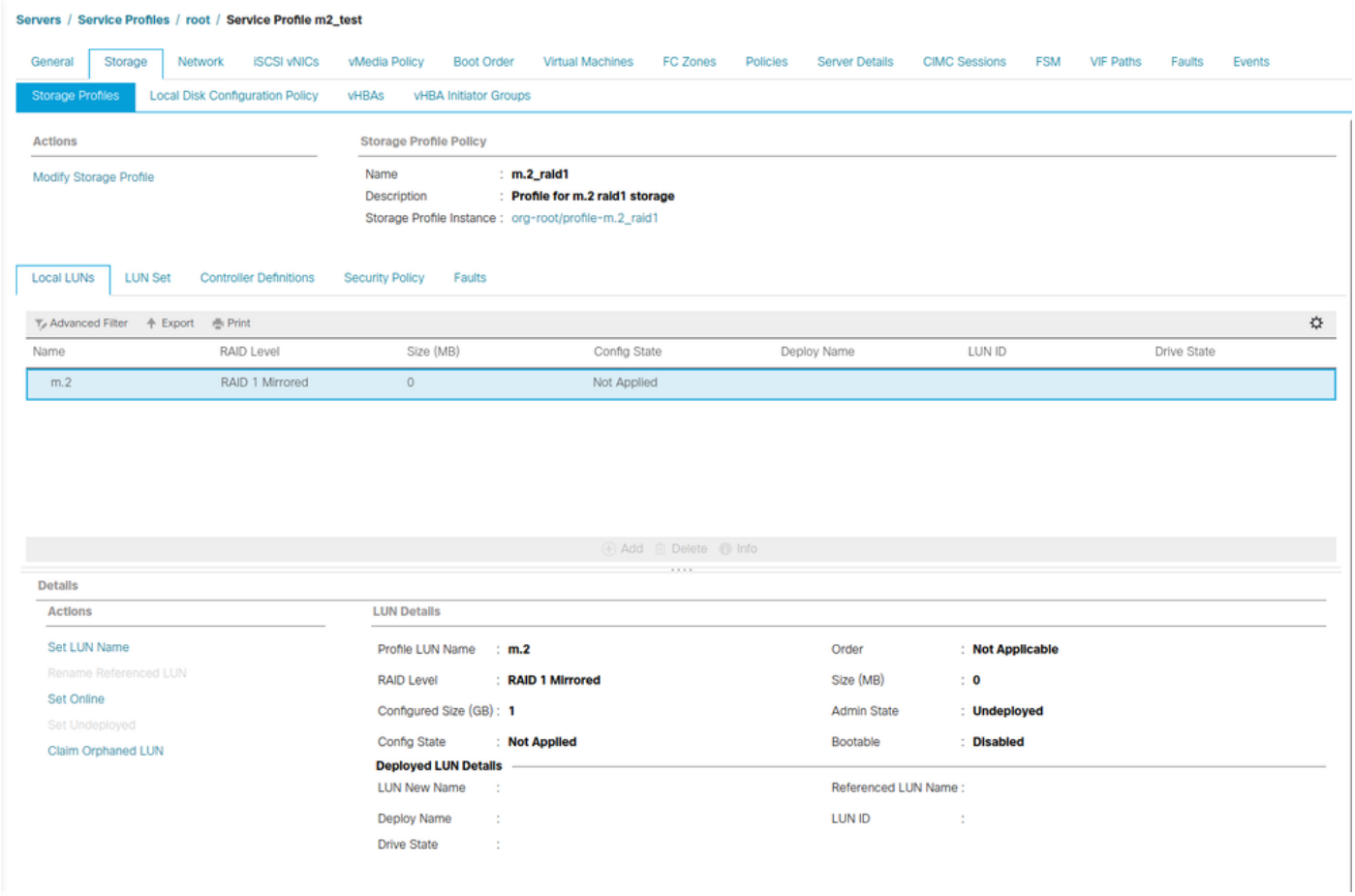
Your window must now look like this:

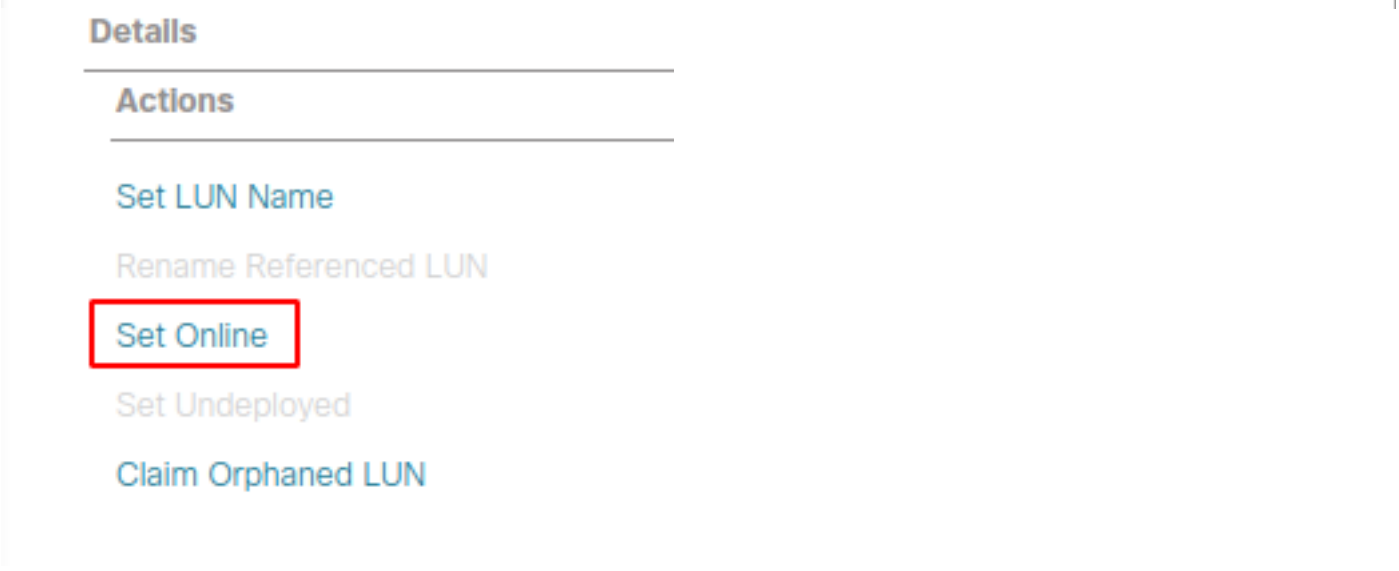

Modify Storage Profile
Specific Storage Profile
Storage Profile Policy
Storage Profile: m.2_raid1
Create Storage Profile
Name : m.2_raid1
Description : Profile for m.2 raid1 storage
LUNs
Local LUNs
LUN Set
Controller Definitions
Security Policy
Advanced Filter
Export
Print
Name
Size (GB)
Order
Fractional Size (MB)
m.2
1
Not Applicable
0
OK
Cancel



Select **OK** on the window, and success window.

If auto-deploy is enabled or disabled, ensure the Local LUN is set to online. In order to set the LUN online, click the **Set Online** button as shown in this image.



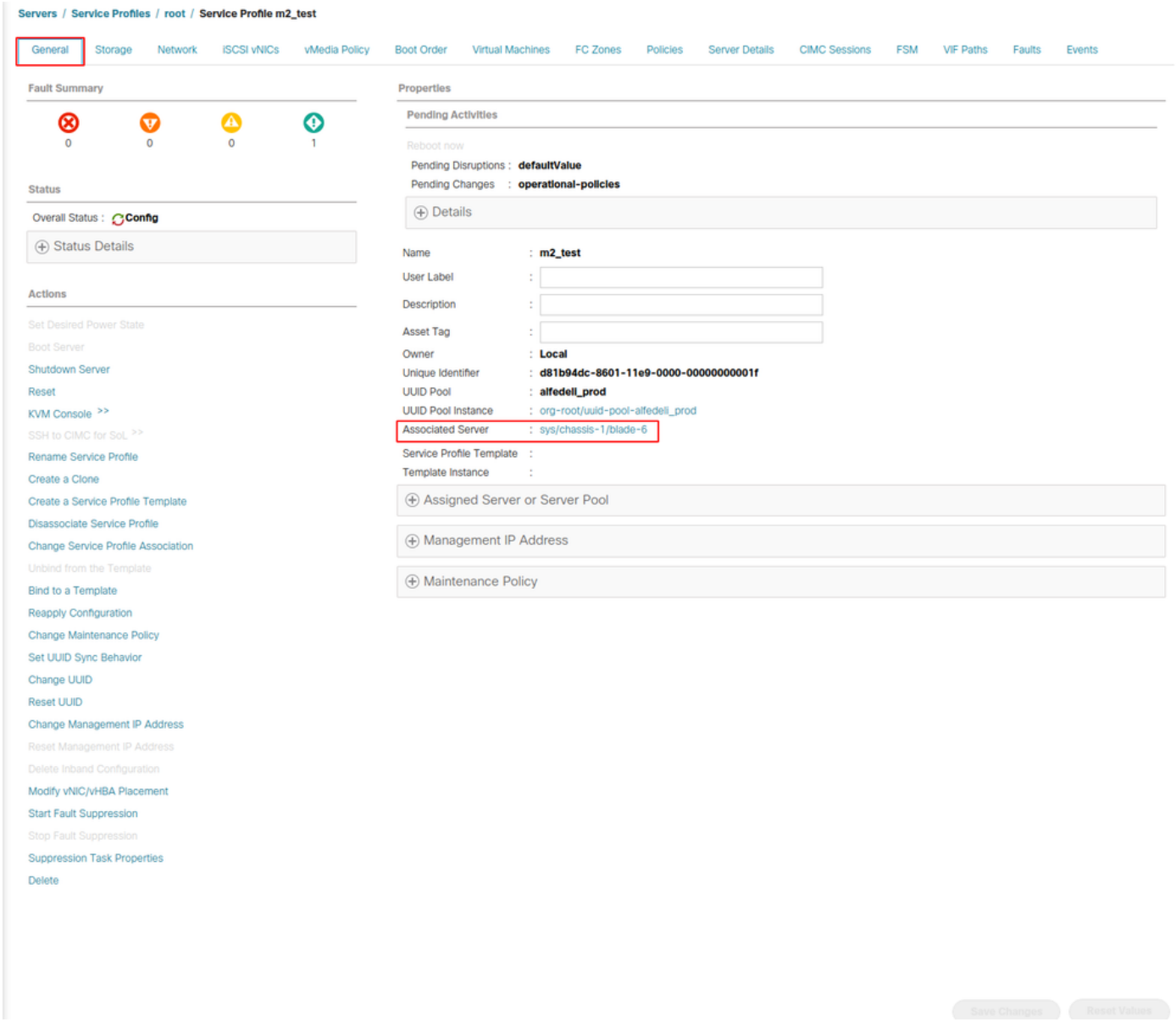


The LUN can take a minute to initialize and come online.

Once the LUN is online, it shows an **Applied Config** state and the **Optimal Drive** state.

4. Verify The LUN.

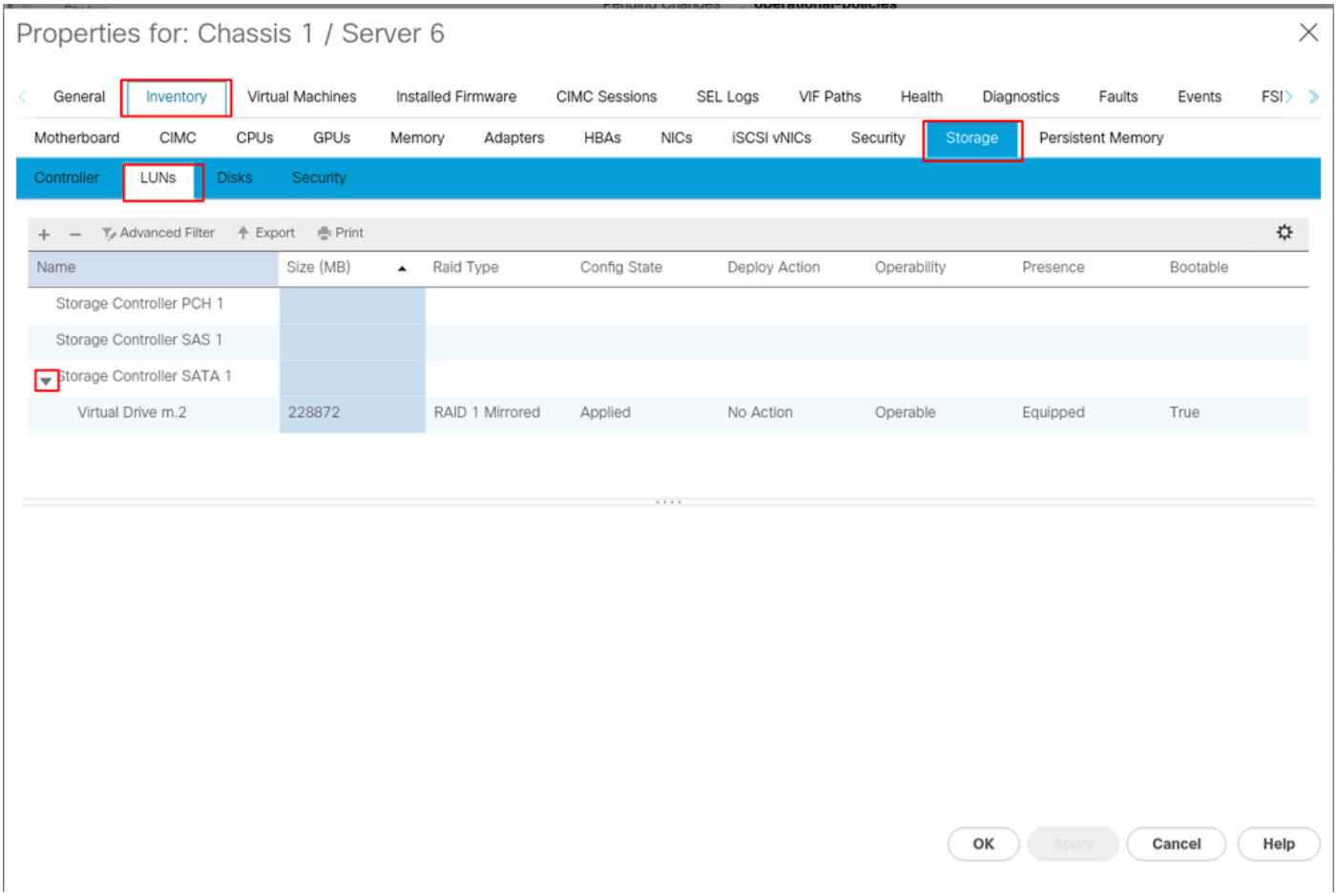
Under the **General** tab of the service profile, click the link for the **Associated Server** as shown in this image.



Navigate to **Inventory> Storage> LUNs**.

Select the drop-down arrow to the left of **Storage Controller SATA 1**. You must see **Virtual Drive [your drive profile name]**

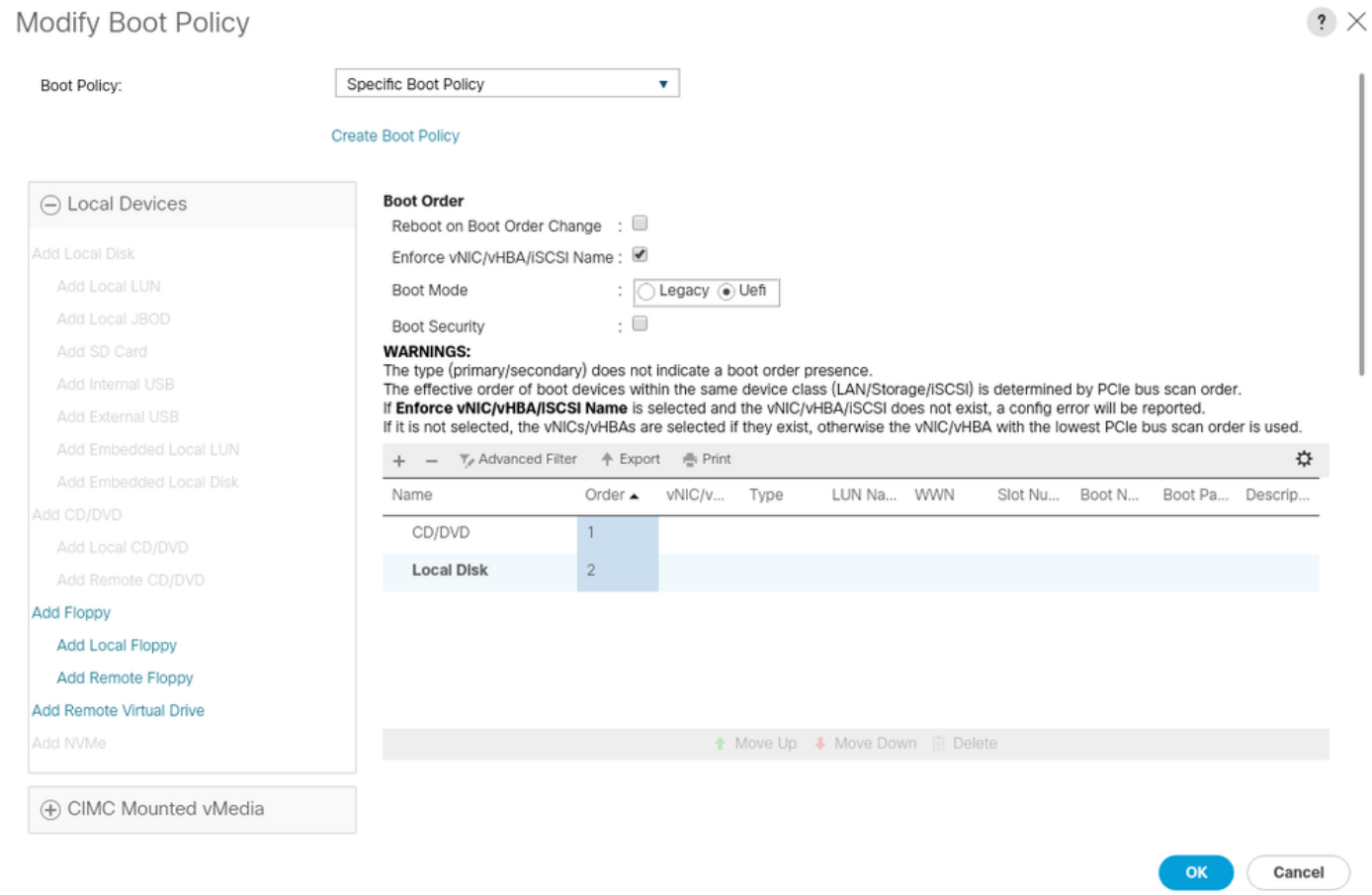
The drive must have auto-configured its size, and be in an **Operable, Equipped, and Bootable** state as shown in this image.



5. Set the Boot Order to boot off the m.2 arrays.

In the service profile, select the **Boot Order** tab as shown in this image.

Set your boot policy to use **Uefi.** After your install media (if any), select the **Add Local Disk** option. Here is an example that the Boot Policy might not match exactly:



You can need to reboot the host for the configs to apply. This changes the **Bootable** field from **Disabled to Enabled** in the Storage Profile.

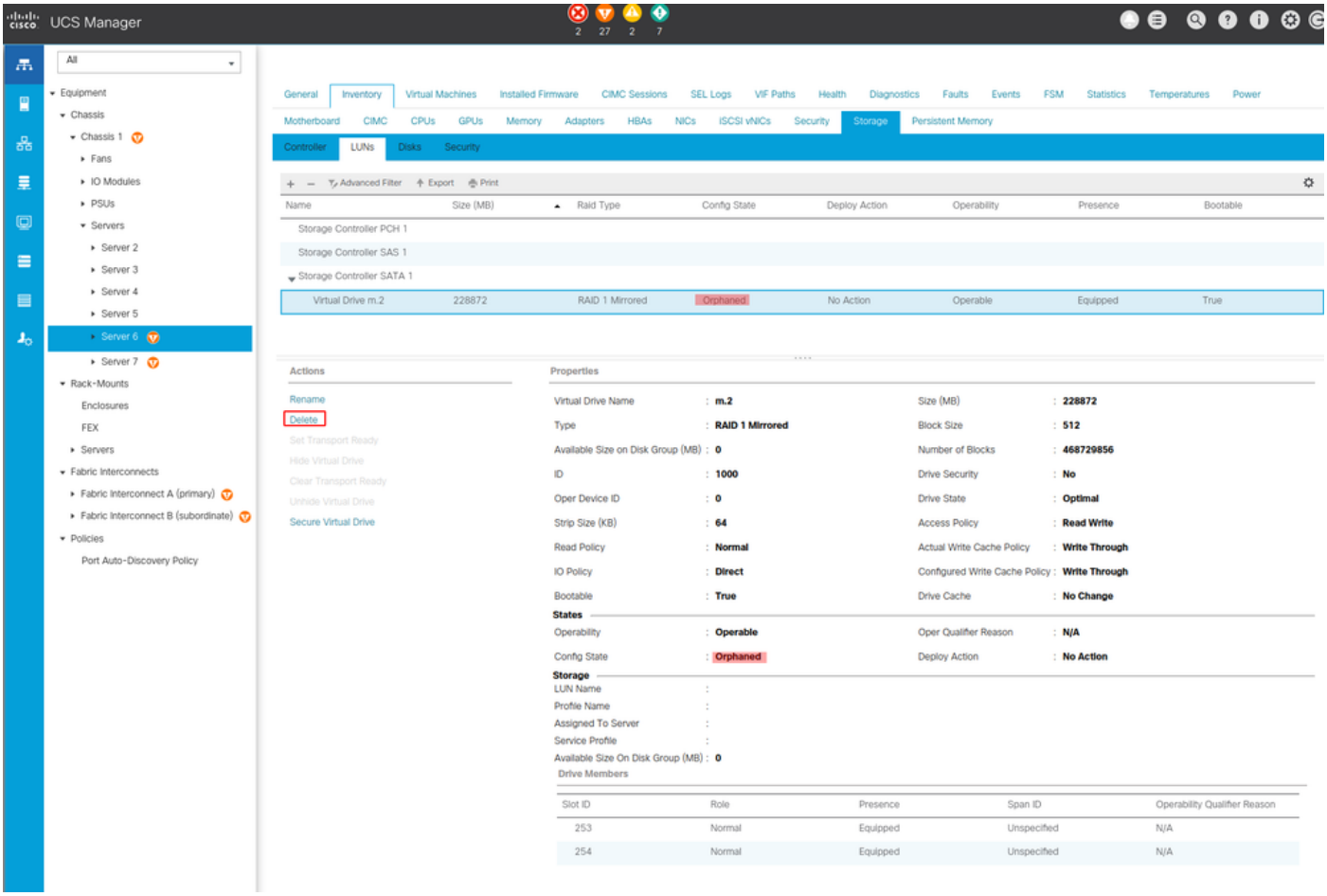
Verify

Check **Inventory** > **Storage** > **LUN** > Config State is Applied

Troubleshoot

This section provides information you can use in order to troubleshoot your configuration.

When an orphaned LUN is found, select the LUN and **Delete** it. This removes any and all data that exists on the array as shown in this image.


UCS Manager
2 27 2 7
All
Equipment
Chassis
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
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
Persistent Memory
Controller
LUNs
Disks
Security
Advanced Filter
Export
Print
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
Role
Presence
Span ID
Operability Qualifier Reason
253
Normal
Equipped
Unspecified
N/A
254
Normal
Equipped
Unspecified
N/A