

Veeam Availability Suite on Cisco UCS C240 M5 Rack Servers: Deployment Overview



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This document introduces the process for deploying Veeam Availability Suite on the Cisco UCS C240 M5 Rack Server.

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Introduction

This document describes at a high level the installation and configuration steps for deploying Veeam Availability Suite on Cisco UCS® C240 M5 Rack Servers to build a data protection solution. This is not a detailed step-by-step guide, and not every task is documented. The focus is on the steps that are relevant to the specific use case. To finish the deployment, knowledge of the following processes is required:

- Cisco Unified Computing System™ (Cisco UCS) configuration
- Microsoft Windows installation and configuration
- Veeam Availability Suite configuration

Technology overview

This section introduces the technologies used in the solution described in this document.

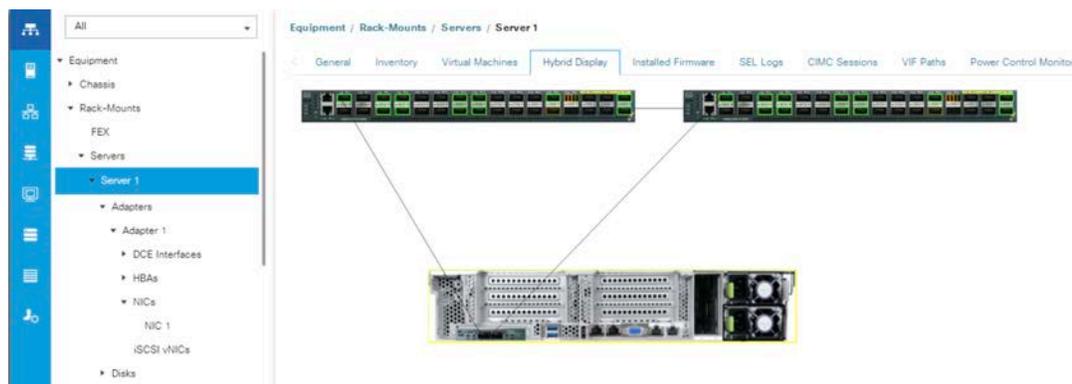
Cisco Unified Computing System

Cisco UCS is a state-of-the-art data center platform that unites computing, network, storage access, and virtualization resources into a single cohesive system.

The main components of Cisco UCS are described here:

- **Computing:** The system is based on an entirely new class of computing system that incorporates rack-mount and blade servers using Intel® Xeon® processor CPUs.
- **Network:** The system is integrated onto a low-latency, lossless, 10-, 25-, 40-, or 100-Gbps unified network fabric. This network foundation consolidates LANs, SANs, and high-performance computing (HPC) networks, which are separate networks today. The unified fabric lowers costs by reducing the number of network adapters, switches, and cables, and by decreasing the power and cooling requirements.
- **Virtualization:** The system unleashes the full potential of virtualization by enhancing the scalability, performance, and operational control of virtual environments. Cisco® security, policy enforcement, and diagnostic features are now extended into virtualized environments to better support changing business and IT requirements.
- **Storage access:** The system provides consolidated access to both SAN storage and network-attached storage (NAS) over the unified fabric. By unifying the storage access layer, Cisco UCS can access storage over Ethernet (with Network File System [NFS] or Small Computer System Interface over IP [iSCSI]), Fibre Channel, and Fibre Channel over Ethernet (FCoE). This approach provides customers with choice for storage access and investment protection. In addition, server administrators can preassign storage-access policies for system connectivity to storage resources, simplifying storage connectivity and management for increased productivity.

Figure 1. Cisco UCS Manager



The Cisco UCS consists of the following components:

- [Cisco UCS Manager](#) provides unified, embedded management of all Cisco UCS software and hardware components (Figure 1).
- [Cisco UCS 6300 Series Fabric Interconnects](#) offer several important features and benefits that can lower the total cost of ownership (TCO) for the platform. Some examples include:
 - Bandwidth up to 2.56 Tbps
 - Centralized unified management with Cisco UCS Manager software
 - High-performance ports capable of line-rate, low-latency, lossless 10 and 40 Gigabit Ethernet (varies by model) and FCoE, and 4-, 8-, and 16-Gbps Fibre Channel
- [Cisco UCS 5100 Series Blade Server Chassis](#) supports up to eight blade servers and up to two fabric extenders in a six-rack-unit (6RU) enclosure.
- [Cisco UCS B-Series Blade Servers](#) increase performance, efficiency, versatility, and productivity with Intel-based blade servers.
- [Cisco UCS C-Series Rack Servers](#) deliver unified computing in an industry-standard form factor to reduce TCO and increase agility.
- [Cisco UCS S-Series Storage Servers](#) deliver unified computing in an industry-standard form factor to address data-intensive workloads with reduced TCO and increased agility.
- [Cisco UCS adapters](#), with wire-once architecture, offer a range of options to converge the fabric, optimize virtualization, and simplify management.

Cisco UCS is designed to deliver:

- Reduced TCO and increased business agility
- Increased IT staff productivity through just-in-time provisioning and mobility support
- A cohesive, integrated system that unifies the technology in the data center
- Industry standards supported by a partner ecosystem of industry leaders
- Unified, embedded management for easy-to-scale infrastructure

Cisco UCS C240 M5 Rack Server

The UCS C240 M5 large-form-factor (LFF) server (Figure 2) extends the capabilities of the Cisco UCS portfolio in a 2RU form factor with the addition of the Intel Xeon Scalable processor family, 24 DIMM slots for 2666-MHz DDR4 DIMMs and capacity points of up to 128 GB, up to 6 PCI Express (PCIe) 3.0 slots, and up to 12 front-facing internal LFF drives plus 2 rear hot-swappable small-form-factor (SFF) drives. The C240 M5 LFF server also includes one dedicated internal slot for a 12-Gbps SAS storage controller card.

The C240 M5 server includes a dedicated modular LAN on motherboard (mLOM) slot for installation of a Cisco virtual interface card (VIC) or third-party network interface card (NIC) without consuming a PCI slot, in addition to two Intel x550 10GBASE-T LOM ports (embedded on the motherboard). The C240 M5 server can be used in a standalone setup or as part of Cisco UCS, which unifies computing, networking, management, virtualization, and storage access into a single integrated architecture, enabling end-to-end server visibility, management, and control in both bare-metal and virtualized environments.

For additional details about Cisco UCS C240 M5 Rack Servers, see <https://www.cisco.com/c/en/us/support/servers-unified-computing/ucs-c240-m5-rack-server/model.html>.

Figure 2. Cisco UCS C240 M5 Rack Server

(Front view)



(Rear view)



Veeam Availability Suite

Veeam is an industry leader in the data protection market. In the era of digital transformation, Veeam recognizes the new challenges that companies around the world face in enabling the always-on enterprise: a business that must operate 24 hours a day, 7 days a week, every day of the year. To address these challenges, Veeam has pioneered a new market of availability for the always-on enterprise, helping organizations meet today's service-level objectives by enabling recovery of any IT service and related applications and data within seconds or minutes. Veeam consistently leads the way in bringing sophisticated backup and disaster recovery capabilities to enterprises and cloud providers.

Solution design and suggested configurations

The Veeam Availability Suite on Cisco UCS C240 data protection solution is designed to address the data protection needs of modern data centers. The increasing percentage of virtualized workloads, the dramatic increase in the size and amount of data, and the changes in the ways that companies do business and work with data have had an immense impact on data protection solutions. With the time requirement for backup operations reduced to minutes, and with recovery point objective (RPO) and recovery time objective (RTO) requirements in the range of minutes to one hour, technologies such as compression, deduplication, replication, and backup to disk are essential in every design.

The features and functions provided by Veeam Availability Suite, combined with the features and functions provided by the Cisco UCS C240 M5 Rack Server, create a powerful solution for fast backup and fast restore operations.

Consider the following factors when backing up a data set to disk or tape:

- Disks are well suited for short retention periods; tape is better suited for longer retention periods.
- Disks are well suited for staging; tape is good for long-term storage.
- Disks are better suited for low-volume incremental backups.
- Incremental forever backups are well suited for storage on disk.
- Restoration from disk is usually faster than restoration from tape.
- If client backup operations are too slow to keep the tape in motion, send the backups to disk.
- If the backups are small, send the backups to disk.
- Staging or lifecycle policies can later move the backup images to tape.

There is no best position in the infrastructure to install a Veeam Availability Suite server on the Cisco UCS C240 because many different options are available to lay out a data center regardless of how big it is. One option is to position the Veeam Availability Suite servers in a central place in the physical network so that they can be accessed from everywhere with the required bandwidth. With this approach, the number of required Veeam Availability Suite servers will be low, but the amount of network traffic will be high. Another option is to place the Veeam Availability Suite servers as close as possible to the data source. With this approach, the number of Veeam Availability Suite servers will be greater, but the amount of network traffic on the core network will be much less.

Integrating Cisco UCS C240 with Veeam Availability Suite into a converged infrastructure solution such as FlashStack provides benefits such as these:

- **Simplified management:** Data protection is part of the existing infrastructure management framework.
- **Ease of scalability:** Storage capacity and network bandwidth are managed within the converged infrastructure solution. Within Cisco UCS, you can scale from a 10-Gbps network to a 40-Gbps network to reduce the backup window. You do not need to order and pay for a 40-Gbps port on the core network from the network team. You can scale the Veeam Availability Suite system from small to large according to the scale of the tier-1 storage or service-level agreement (SLA) changes from the business for applications running on the converged infrastructure solution.
- **Ease of support:** All components required to run an application and to back up and restore data are part of the same converged infrastructure solution and known by the administrator team onsite, the support team at Cisco, and the implementation partner. This approach simplifies the identification and resolution of problems such as bottlenecks and failed components.

Suggested hardware configurations

Using the sizing rules for the Veeam server components, Cisco has defined suggested configurations for different scale options, summarized in Table 1.

Table 1. Suggested Cisco UCS configurations for Veeam Availability Suite server

	8 TB	48 TB	72 TB	84 TB	168 TB	336 TB	672 TB	2016 TB
Servers	1 Cisco UCS C240 M5 (LFF)	1 Cisco UCS C240 M5 (LFF)	1 Cisco UCS C240 M5 (LFF)	1 Cisco UCS S3260	3 Cisco UCS S3260			
OS drives	2 x 400-GB SAS SSDs	2 x 400-GB SAS SSDs	2 x 400-GB SAS SSDs	2 x 480-GB SATA SSDs	2 x 480-GB SATA SSDs	2 x 480-GB SATA SSDs	2 x 480-GB SATA SSDs	2 x 480-GB SATA SSDs per node
Raw capacity	8 TB	48 TB	72 TB	84 TB	168 TB	336 TB	672 TB	2016 TB
Storage	Replication-only appliance	12 x 4-TB SAS 7200-rpm drives 48 TB of raw capacity	12 x 6-TB SAS 7200-rpm drives 72 TB of raw capacity	14 x 6-TB SAS 7200-rpm drives 84 TB of raw capacity	14 x 12-TB SAS 7200-rpm drives 168 TB of raw capacity	28 x 12-TB SAS 7200-rpm drives 336 TB of raw capacity	56 x 12-TB SAS 7200-rpm drives 672 TB of raw capacity	168 x 12-TB SAS 7200-rpm drives 2016 TB of raw capacity
Servers	1 Cisco UCS C240 M5 (LFF)	1 Cisco UCS C240 M5 (LFF)	1 Cisco UCS C240 M5 (LFF)	1 Cisco UCS S3260	3 Cisco UCS S3260			
CPU	2 Intel Xeon Silver processor 4114 CPUs (10 cores, 2.2 GHz, and 85W)	2 Intel Xeon Silver processor 4114 CPUs (10 cores, 2.2 GHz, and 85W)	2 Intel Xeon Silver processor 4114 CPUs (10 cores, 2.2 GHz, and 85W)	2 Intel Xeon Gold processor 6138 CPUs (20 cores, 2.0 GHz, and 125W)	2 Intel Xeon Gold processor 6138 CPUs (20 cores, 2.0 GHz, and 125W)	2 Intel Xeon Gold processor 6138 CPUs (20 cores, 2.0 GHz, and 125W)	2 Intel Xeon Gold processor 6138 CPUs (20 cores, 2.0 GHz, and 125W)	2 Intel Xeon Gold processor 6138 CPUs (20 cores, 2.0 GHz, and 125W)
Memory	96 GB	96 GB	96 GB	128 GB	128 GB	128 GB	128 GB	128 GB per server (total: 384 GB)
RAID cache	2 GB	2 GB	2 GB	4GB	4 GB	4 GB	4 GB	4 GB per node
RAID	RAID 1	RAID 6	RAID 6	RAID 6	RAID 6	RAID 60	RAID 60	RAID 60
Maximum bandwidth	2 x 40 Gbps	2 x 40 Gbps	2 x 40 Gbps	2 x 40 Gbps	2 x 40 Gbps	2 x 40 Gbps	2 x 40 Gbps	2 x 40 Gbps per node

Note: Storage efficiencies through Veeam compression and deduplication technologies can reduce space utilization by 50 percent or more. Backup repositories on Microsoft Resilient File System (ReFS) 3.0 volumes also benefit from integration with the Block Clone API, reducing creation time for synthetic full backups and dramatically reducing space consumption for the synthetic full backup. Overall space savings will vary depending on the environment.

The suggested configurations based on the Cisco UCS C240 are as-is designs, with no option to scale within the rack server. The configurations are for small deployments and remote-office and branch-office (ROBO) deployments, or for deployment to staging units for backup to disk and then to tape or backup to disk and then to the cloud.

The suggested configurations are based on the Cisco UCS S3260 Storage Server with 6- and 12-TB drives. The configurations provide the option to choose 14, 28, 42, or 56 drives at the time of ordering and to scale to 56 drives later. The configuration with 6-TB drives provides better throughput per terabyte, and the configuration with 12-TB drives provides lower cost per terabyte.

Cisco UCS configuration

This document discusses the use of a standalone Cisco UCS C240 M5 LFF rack server and of a Cisco UCS C240 M5 LFF rack server managed by Cisco UCS to install Veeam Availability Suite. The document thus describes how to deploy the solution both within a Cisco UCS domain and connected to data center switches.

Use the Cisco UCS C240 installation guide

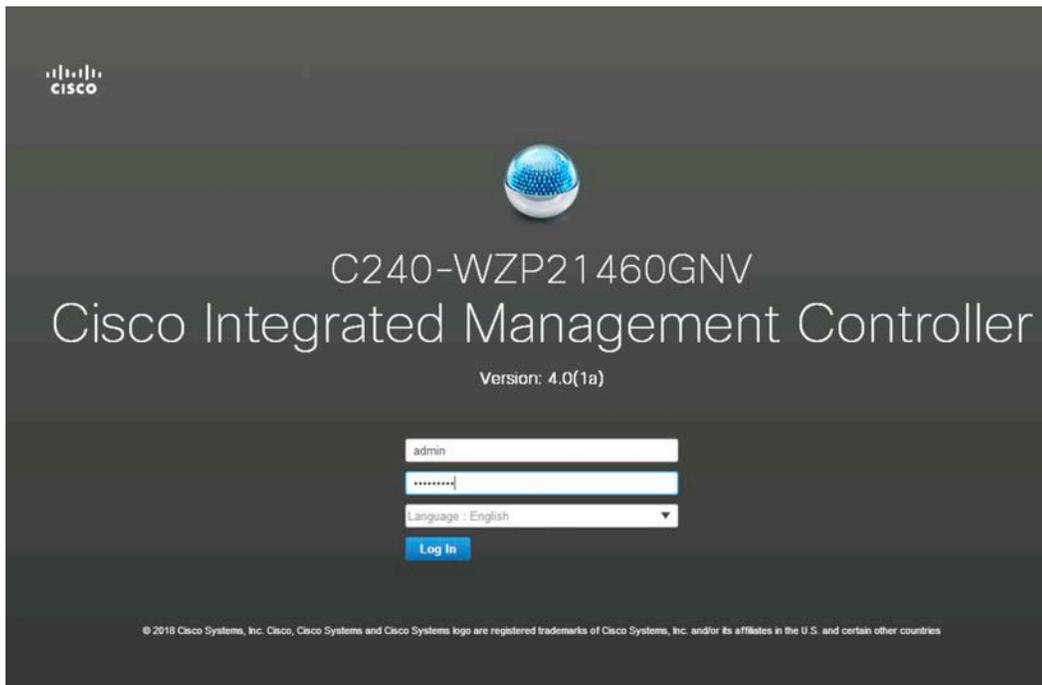
(https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/hw/C240M5/install/C240M5/C240M5_chapter_00.html) to complete the initial configuration (IP addresses, passwords, software versions, etc.). This document assumes that the C240 M5 is accessible through the Cisco Integrated Management Controller (IMC) or Cisco UCS Manager over the network.

Note: The design and configuration principles presented here can be used for unmanaged installations. You can use the Cisco IMC for the storage and network configuration as well as for operating system installation.

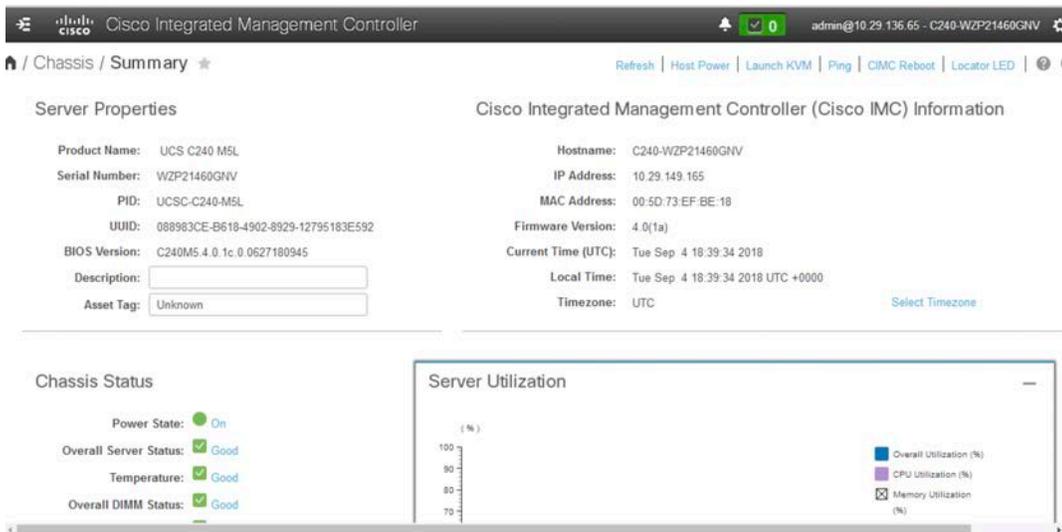
Standalone configuration with Cisco Integrated Management Controller

Use the process described here to configure a standalone solution.

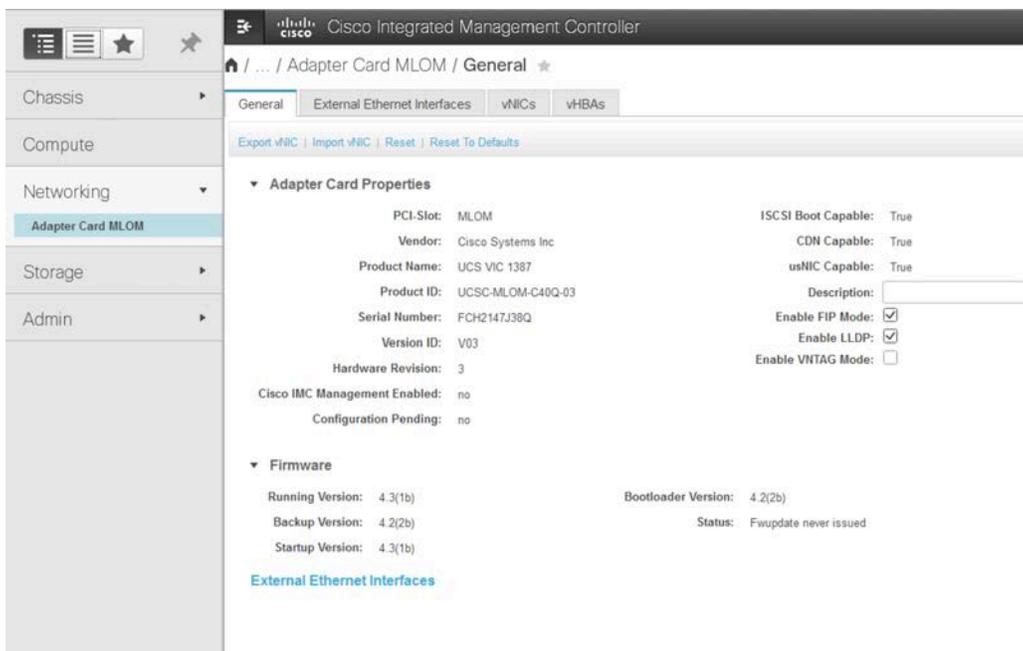
1. Log on to the Cisco IMC as the admin user.



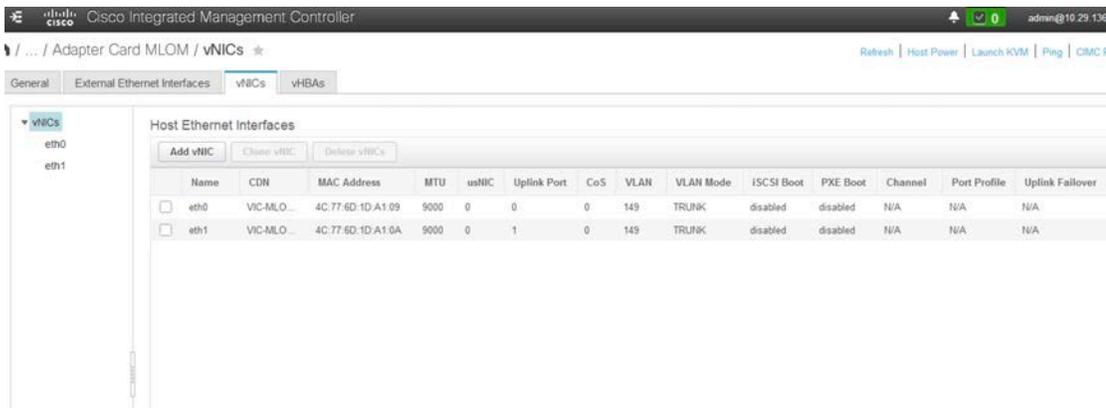
2. Check the condition of the system and the components required for the deployment on the Chassis > Summary page.



3. Choose Networking to see the mLOM adaptor card configuration. The General tab presents an overview of the Cisco UCS VIC 1387 configuration.

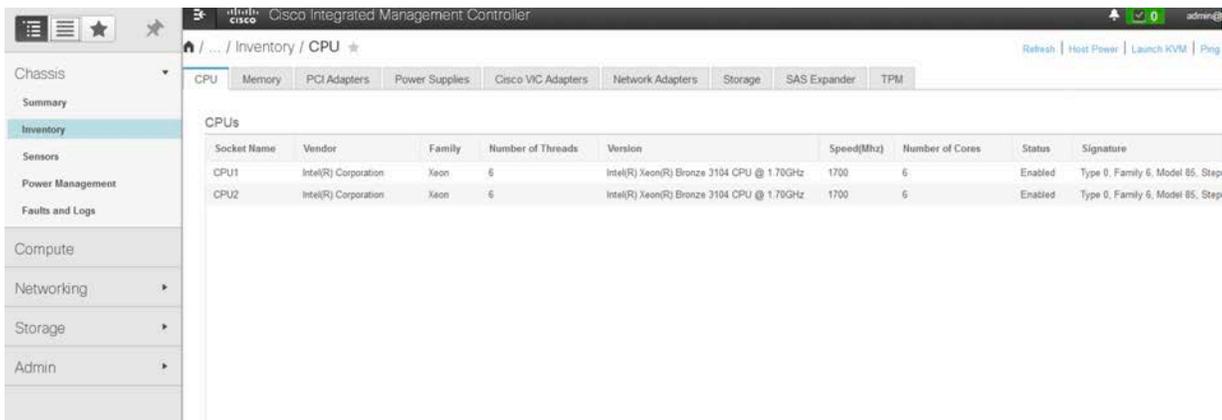


4. View the vNICs tab. This tab summarizes the existing host Ethernet interfaces, including the maximum transmission unit (MTU) size, the uplink port used, and VLAN information.
 - a. As a best practice, create at least two virtual NICs (vNICs) per VLAN ID connected to a redundant pair of uplink switches.
 - b. If possible, use an MTU value of 9000 for the backup network and on all participating devices in the network (clients, switches, and servers).

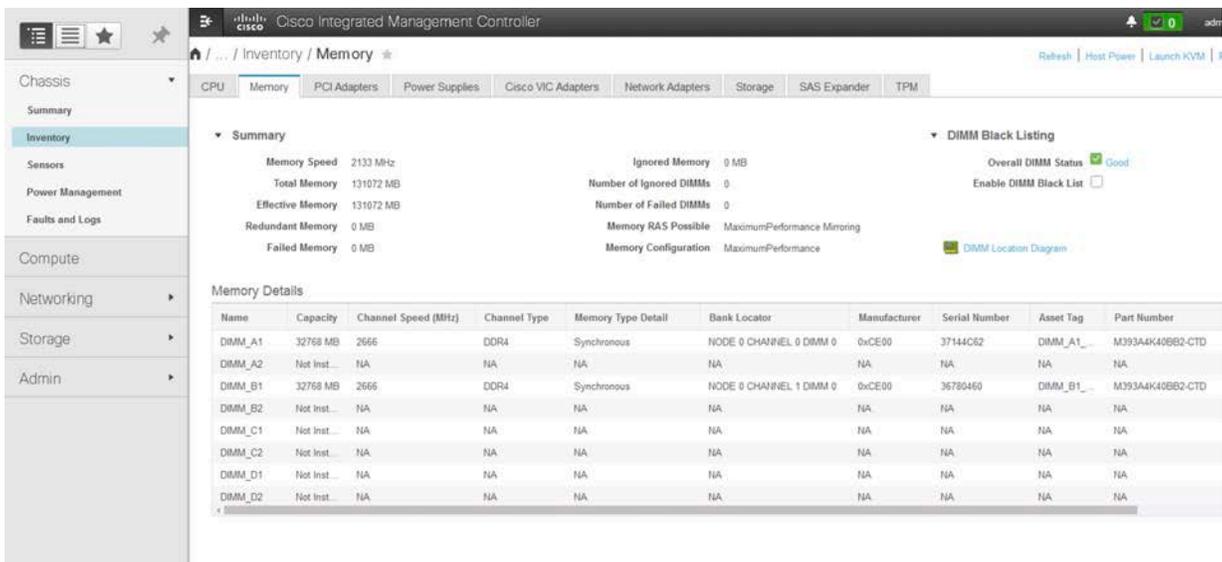


5. Choose Chassis > Inventory.

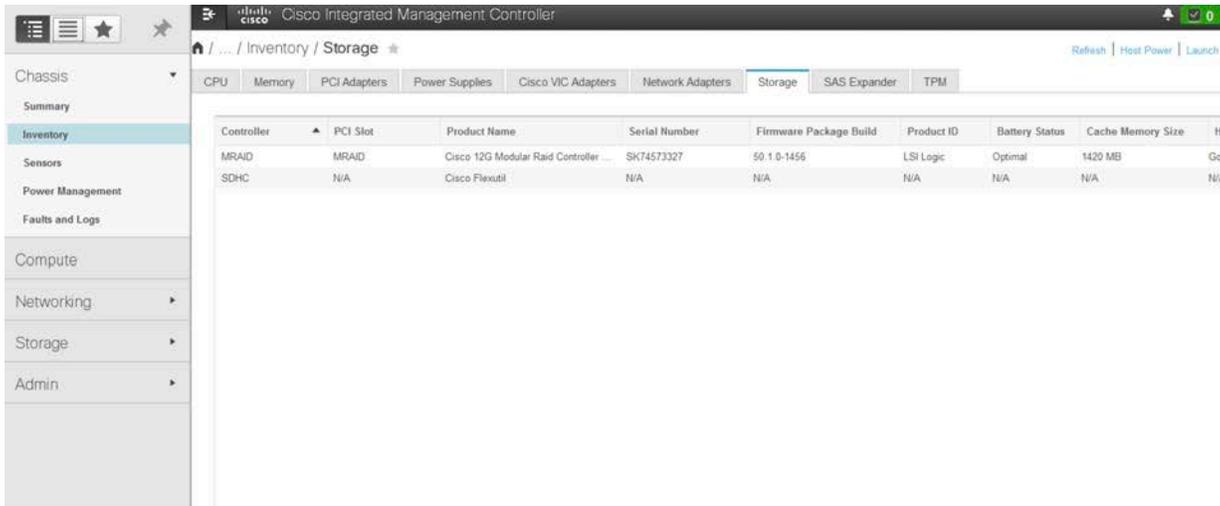
The CPU tab summarizes the details of the CPU on the C240 M5.



The Memory tab of the Inventory pane presents memory details.



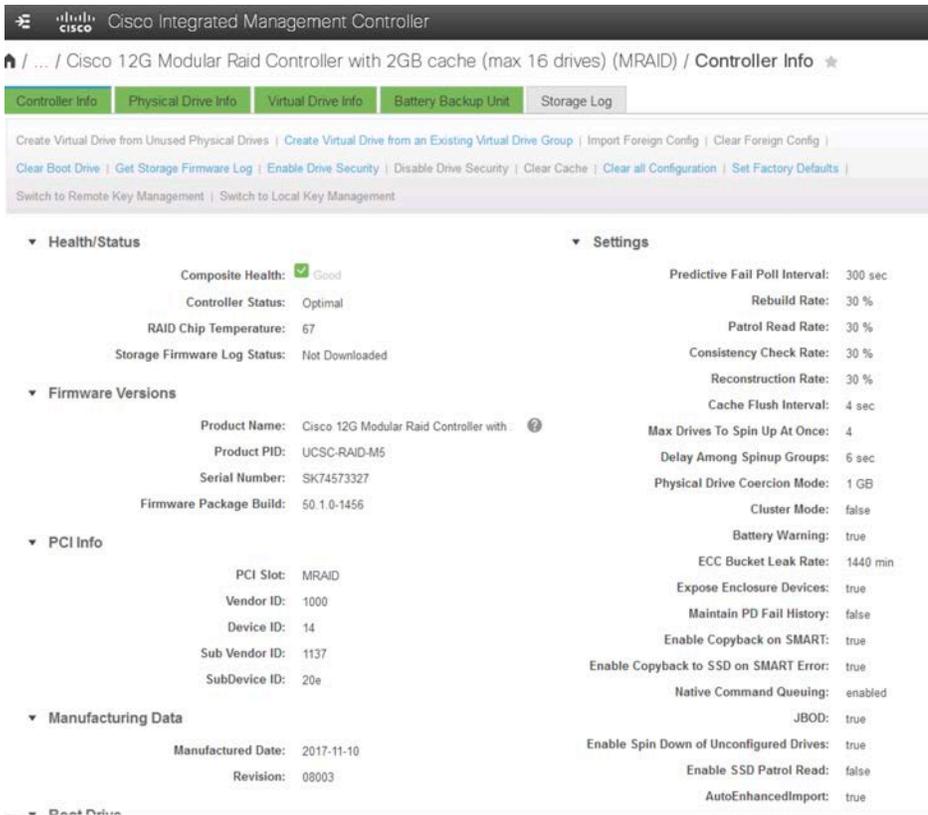
The Storage tab of the Inventory pane shows the storage controller information.



6. Choose Storage.

The storage configuration is the most important part of the Cisco UCS C240 M5 LFF configuration.

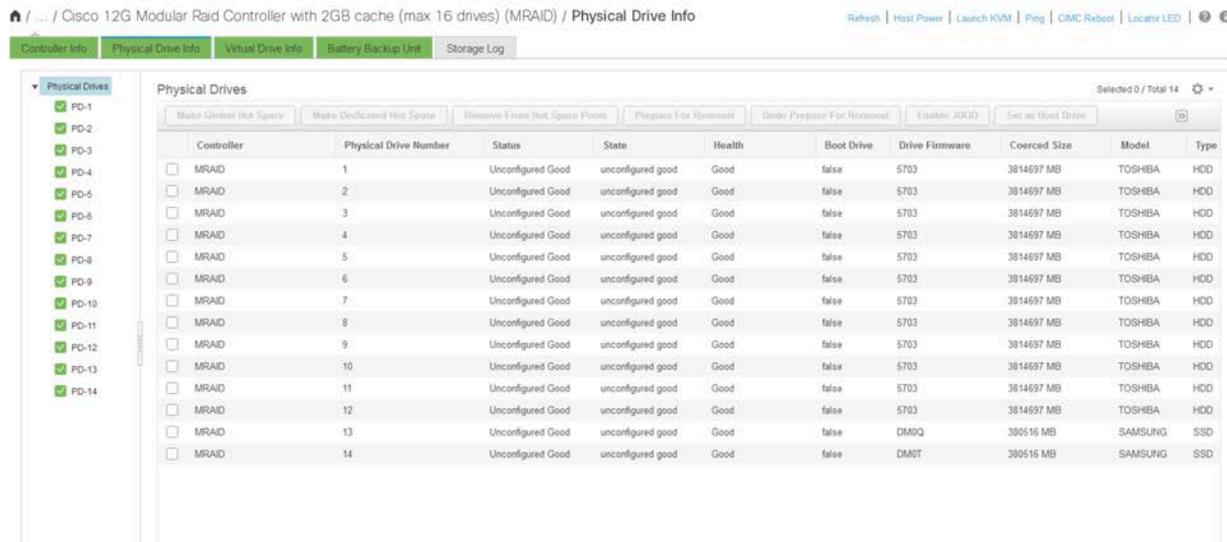
The Storage pane shows the RAID controller information, physical drive and virtual drive information, and RAID settings.



7. Choose Physical Drive Info.

The RAID controller will see only the physical drives on the C240 M5. The present server is configured with 12 x 4-TB capacity drives and rear-mounted 2 x 400-GB SAS solid-state disk (SSD) drives. The SSD drives with RAID 1 will be used for OS and Veeam installation.

8. Verify that all drives are in the Unconfigured Good state. If drives are in JBOD mode, select each drive and set the state to Unconfigured Good.

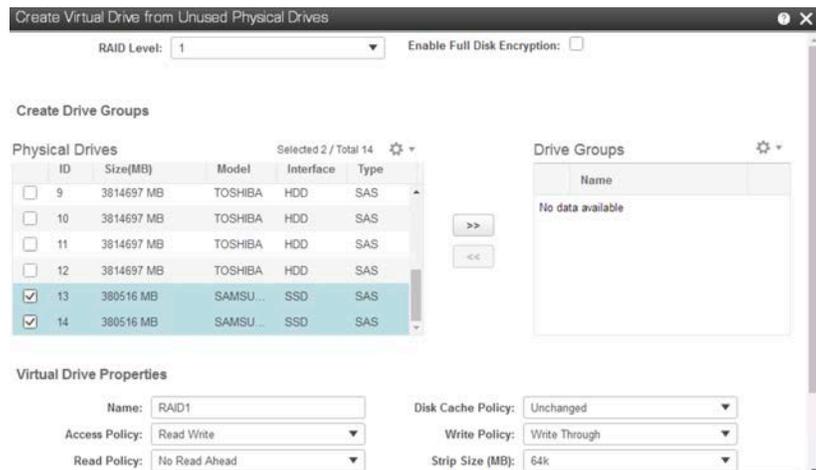


9. Create virtual disk group 0. On the Controller Info page, click Create Virtual Drive from Unused Physical Drives.



10. For the operating system and Veeam Server, you must create a RAID 1 configuration on the two SSDs on the back of the chassis.

- a. Select 1 as the RAID level.
- b. Select physical drives 13 and 14 and add them to the drive group (click >>).



- c. Set the following parameters:
 - Name: **RAID1_Boot**

- Disk Cache Policy: Unchanged
- Access Policy: Read Write
- Write Policy: Write Back Good BBU
- Read Policy: Always Read Ahead
- Cache Policy: Cached IO
- Strip Size: Select the value shown for the largest available space.

Create Virtual Drive from Unused Physical Drives

RAID Level: Enable Full Disk Encryption:

Create Drive Groups

Physical Drives Selected 0 / Total 12

ID	Size(MB)	Model	Interface	Type
<input type="checkbox"/> 1	3814697 MB	TOSHIBA	HDD	SAS
<input type="checkbox"/> 2	3814697 MB	TOSHIBA	HDD	SAS
<input type="checkbox"/> 3	3814697 MB	TOSHIBA	HDD	SAS
<input type="checkbox"/> 4	3814697 MB	TOSHIBA	HDD	SAS
<input type="checkbox"/> 5	3814697 MB	TOSHIBA	HDD	SAS
<input type="checkbox"/> 6	3814697 MB	TOSHIBA	HDD	SAS

Drive Groups

Name
<input checked="" type="checkbox"/> DG [13,14]

Virtual Drive Properties

Name:

Access Policy:

Read Policy:

Disk Cache Policy:

Write Policy:

Strip Size (MB):

11. Configure drive 12 as a global hot spare.

... / Cisco 12G Modular Raid Controller with 2GB cache (max 16 drives) (MRAID) / Physical Drive Info

Refresh | Host Power | Launch KVM | Ping | BMC Reboot

Controller Info | Physical Drive Info | Virtual Drive Info | Battery Backup Unit | Storage Log

Physical Drives

Controller	Physical Drive Number	Status	State	Health	Boot Drive	Drive Firmware	Coerced Size
<input type="checkbox"/> MRAID	1	Unconfigured Good	unconfigured good	Good	false	5703	3814697 MB
<input type="checkbox"/> MRAID	2	Unconfigured Good	unconfigured good	Good	false	5703	3814697 MB
<input type="checkbox"/> MRAID	3	Unconfigured Good	unconfigured good	Good	false	5703	3814697 MB
<input type="checkbox"/> MRAID	4	Unconfigured Good	unconfigured good	Good	false	5703	3814697 MB
<input type="checkbox"/> MRAID	5	Unconfigured Good	unconfigured good	Good	false	5703	3814697 MB
<input type="checkbox"/> MRAID	6	Unconfigured Good	unconfigured good	Good	false	5703	3814697 MB
<input type="checkbox"/> MRAID	7	Unconfigured Good	unconfigured good	Good	false	5703	3814697 MB
<input type="checkbox"/> MRAID	8	Unconfigured Good	unconfigured good	Good	false	5703	3814697 MB
<input type="checkbox"/> MRAID	9	Unconfigured Good	unconfigured good	Good	false	5703	3814697 MB
<input type="checkbox"/> MRAID	10	Unconfigured Good	unconfigured good	Good	false	5703	3814697 MB
<input type="checkbox"/> MRAID	11	Unconfigured Good	unconfigured good	Good	false	5703	3814697 MB
<input checked="" type="checkbox"/> MRAID	12	Global Hot Spare	hot spare	Good	false	5703	3814697 MB
<input type="checkbox"/> MRAID	13	Online	online	Good	false	DMA0Q	380516 MB
<input type="checkbox"/> MRAID	14	Online	online	Good	false	DMA0T	380516 MB

12. Create RAID 6 as the Veeam repository.

- On the Controller Info tab, click Create Virtual Drive from Unused Physical Drives.

Cisco Integrated Management Controller

Home / ... / Cisco 12G Modular Raid Controller with 2GB cache (max 16 drives) (MRAID) / Controller Info ★

Controller Info | Physical Drive Info | Virtual Drive Info | Battery Backup Unit | Storage Log

[Create Virtual Drive from Unused Physical Drives](#) |
 [Create Virtual Drive from an Existing Virtual Drive Group](#) |
 [Import Foreign Config](#) |
 [Clear Foreign Config](#) |
 [Clear Boot Drive](#) |
 [Get Storage Firmware Log](#) |
 [Enable Drive Security](#) |
 [Disable Drive Security](#) |
 [Clear Cache](#) |
 [Clear all Configuration](#) |
 [Set Factory Defaults](#) |
 [Switch to Remote Key Management](#) |
 [Switch to Local Key Management](#)

<p>▼ Health/Status</p> <p>Composite Health: ✔ Good</p> <p>Controller Status: Optimal</p> <p>RAID Chip Temperature: 67</p> <p>Storage Firmware Log Status: Not Downloaded</p> <p>▼ Firmware Versions</p> <p>Product Name: Cisco 12G Modular Raid Controller with ?</p>	<p>▼ Settings</p> <p>Predictive Fail Poll Interval: 300 s</p> <p>Rebuild Rate: 30 %</p> <p>Patrol Read Rate: 30 %</p> <p>Consistency Check Rate: 30 %</p> <p>Reconstruction Rate: 30 %</p> <p>Cache Flush Interval: 4 sec</p> <p>Max Drives To Spin Up At Once: 4</p>
--	---

- b. For the RAID level, select RAID 6.
- c. Select drives 1 to 11 and click the >> tab to add drives under Drive Groups.
- d. Set the following parameters:
 - Name: **Veeam_Rep.**
 - Disk Cache Policy: Unchanged
 - Access Policy: Read Write
 - Write Policy: Write Back Good BBU
 - Read Policy: Always Read Ahead
 - Cache Policy: Cached IO

Create Virtual Drive from Unused Physical Drives

RAID Level: 6 Enable Full Disk Encryption:

Create Drive Groups

Physical Drives: Selected 0 / Total 0

ID	Size(MB)	Model	Interface	Type
No data available				

Drive Groups: Selected 0 / Total 0

Name
<input type="checkbox"/> DG [1.2.3.4.5.6.7.8.9.10.11]

Virtual Drive Properties

Name: Veeam_Rep

Access Policy: Read Write

Read Policy: Always Read Ahead

Cache Policy: Cached IO

Disk Cache Policy: Unchanged

Write Policy: Write Back Good BBU

Strip Size (MB): 64k

Size: 34332273 MB

[3814697 : 34332273]

Generate XMLAPI Request **Create Virtual Drive** Close

13. Click the Virtual Drive Info tab and select the boot virtual drive.

Cisco Integrated Management Controller

admin@10.29.136.65 - C240-WZP21460GNV

Refresh | Host Power | Launch KVM | Ping | CIMC Reboot | Locator LED

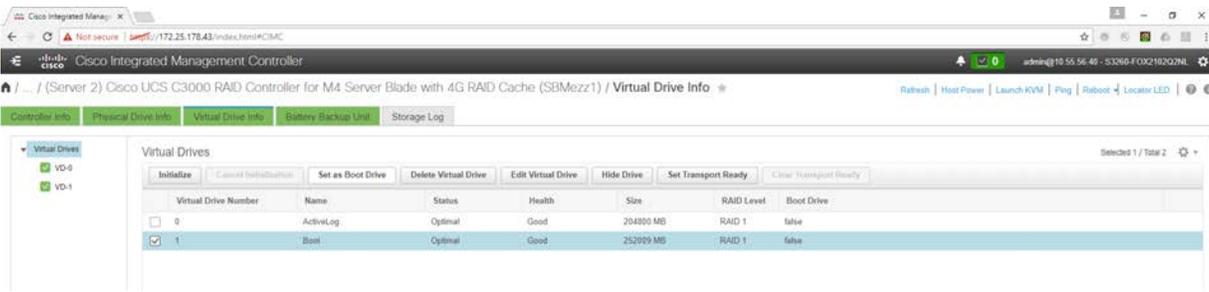
Virtual Drive Info

Virtual Drives: Selected 1 / Total 2

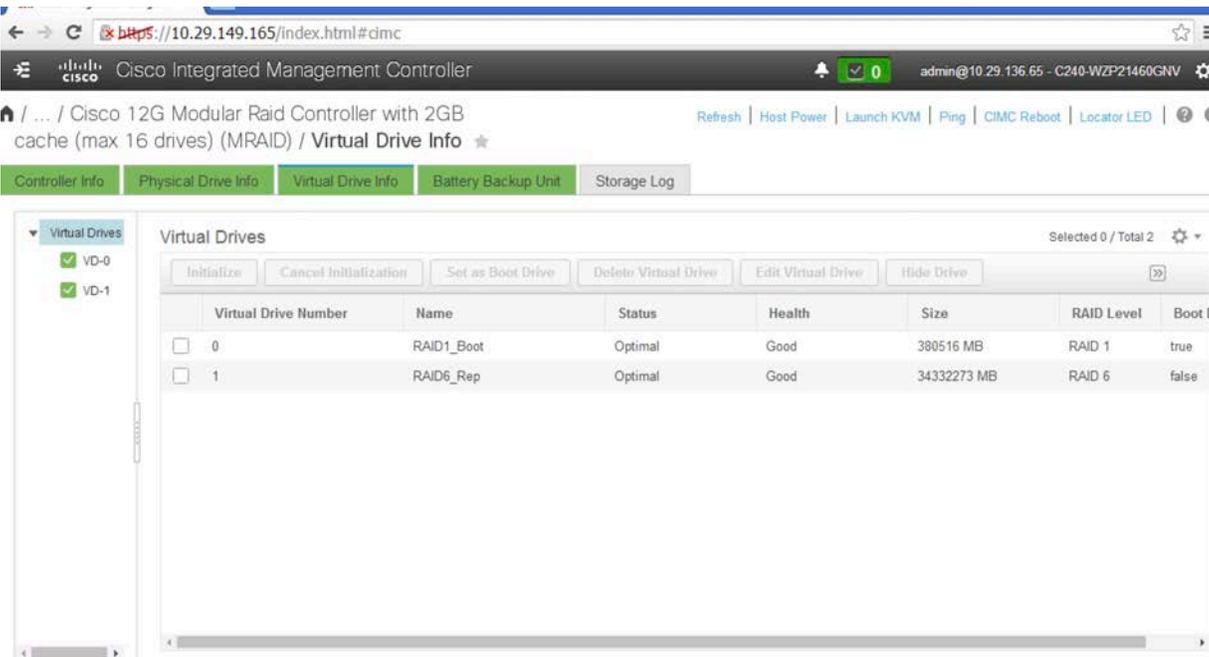
Initialize Cancel Initialization Set as Boot Drive Delete Virtual Drive Edit Virtual Drive Hide Drive

Virtual Drive Number	Name	Status	Health	Size	RAID Level	Boot
<input checked="" type="checkbox"/> 0	RAID1_Boot	Optimal	Good	380516 MB	RAID 1	false
<input type="checkbox"/> 1	RAID6_Rep	Optimal	Good	34332273 MB	RAID 6	false

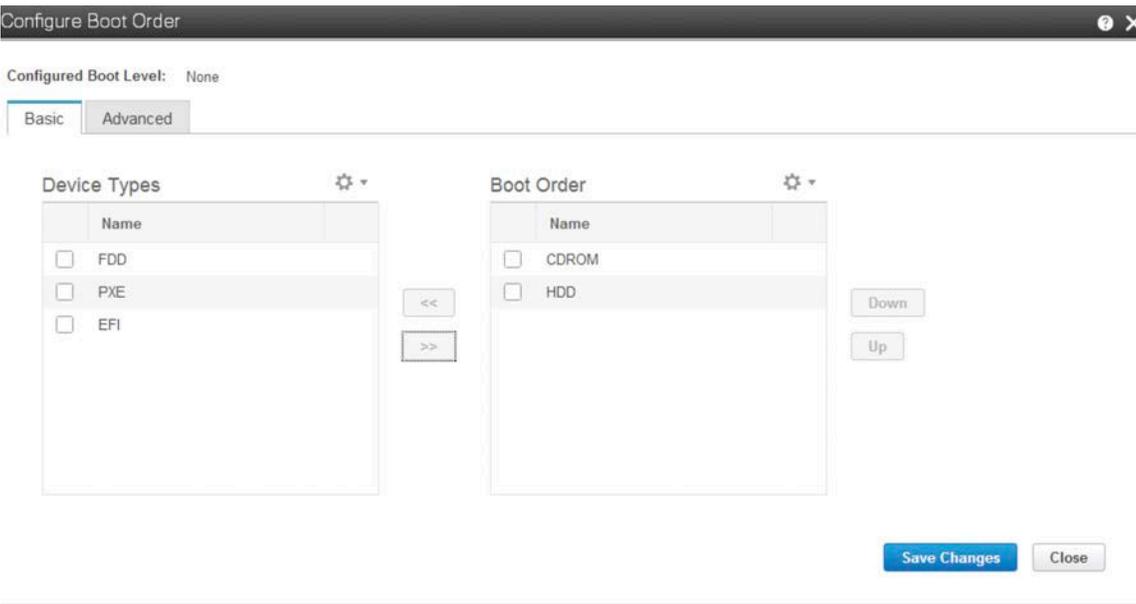
14. Click Set as Boot Drive.



15. Confirm that you want to make the boot virtual drive the boot drive. Confirm the use of two virtual drives: for the OS boot and Veeam installation and for the Veeam repository.



16. Choose Compute > BIOS > Configure the Boot Order.



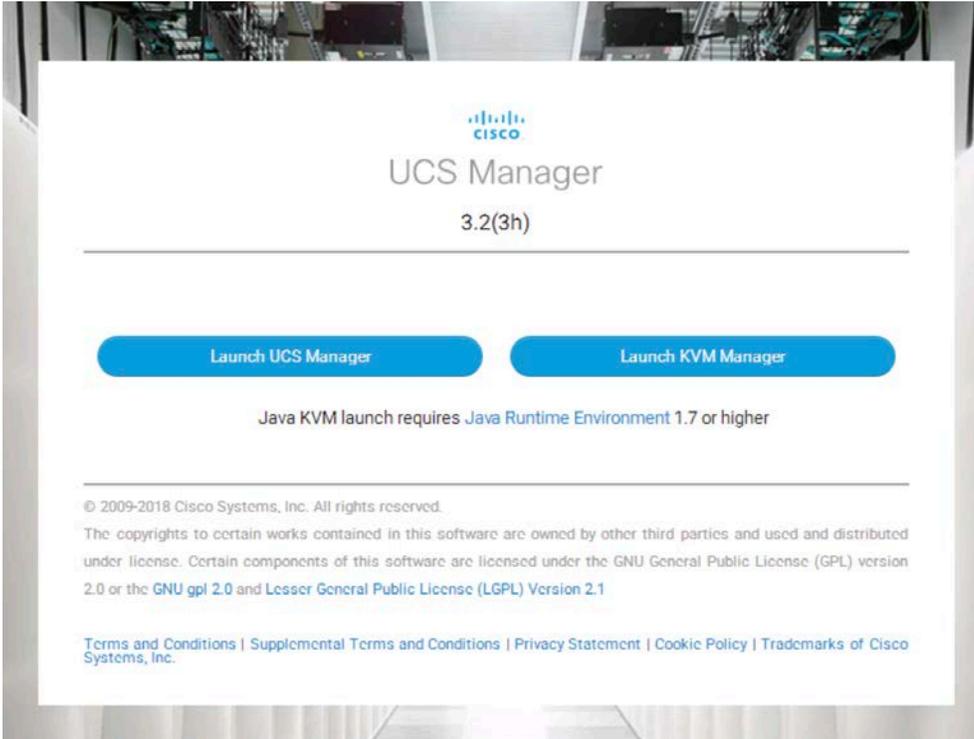
Cisco UCS managed configuration with Cisco UCS Manager

Use the process described here to configure a solution managed by Cisco UCS.

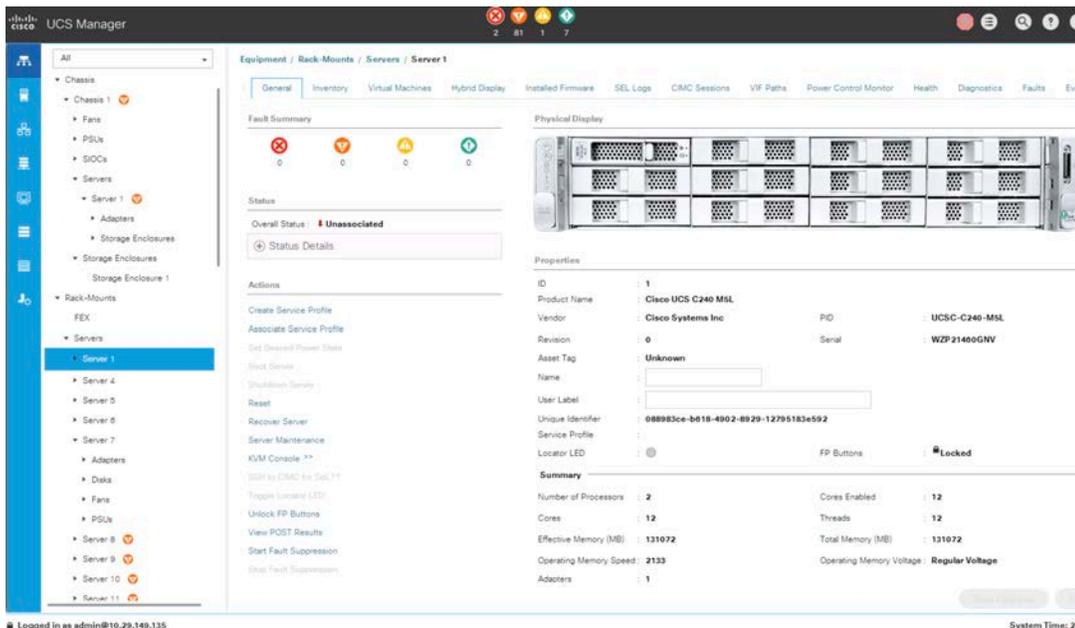
View the system

Start the configuration by reviewing the setup.

1. Log in to Cisco UCS Manager as the admin user or as another user with administrative rights.



2. On the Equipment tab, identify the Cisco UCS C240 M5 Rack Server and check the condition of the system and the components required for the deployment.



3. On the Inventory tab, verify the CPU and configured memory.

Equipment / Rack-Mounts / Servers / Server 1

General Inventory Virtual Machines Hybrid Display Installed Firmware SEL Logs CIMC Sessions VIF Paths Power Control Monitor Health

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

Processor 1

Product Name	: Intel(R) Xeon(R) Bronze 3104	Vendor	: Intel(R) Corporation
PID	: UCS-CPU-3104	Revision	: 0

⊕ Part Details

Processor Architecture : Xeon			
CPU Stepping	: 4	Speed (GHz)	: 1.7
Socket Name	: CPU1	Number of Threads	: 0
Number of Cores	: 0	Number of Cores Enabled	: 0

States

Overall Status	: Operable	Power	: N/A
Operability	: Operable	Presence	: Equipped
Thermal	: OK		

Processor 2

Product Name	: Intel(R) Xeon(R) Bronze 3104	Vendor	: Intel(R) Corporation
PID	: UCS-CPU-3104	Revision	: 0

⊕ Part Details

Processor Architecture : Xeon			
CPU Stepping	: 4	Speed (GHz)	: 1.7
Socket Name	: CPU2	Number of Threads	: 0
Number of Cores	: 0	Number of Cores Enabled	: 0

Equipment / Rack-Mounts / Servers / Server 1

General Inventory Virtual Machines Hybrid Display Installed Firmware SEL Logs CIMC Sessions VIF Paths Power Control Monitor Health Dia

Motherboard CIMC CPUs GPUs Memory Adapters HBAs NICs iSCSI vNICs Storage

Advanced Filter Export Print

Name	Location	Capacity(GB)	Clock(MHz)
Memory 1	DIMM_A1	32.00	2666
Memory 2	DIMM_A2	Unspecified	Unspecified
Memory 3	DIMM_B1	32.00	2666
Memory 4	DIMM_B2	Unspecified	Unspecified
Memory 5	DIMM_C1	Unspecified	Unspecified
Memory 6	DIMM_C2	Unspecified	Unspecified

Add Delete Info



4. On the Inventory tab, verify that the adaptor is the mLOM for a 40-Gbps network.

Equipment / Rack-Mounts / Servers / Server 1

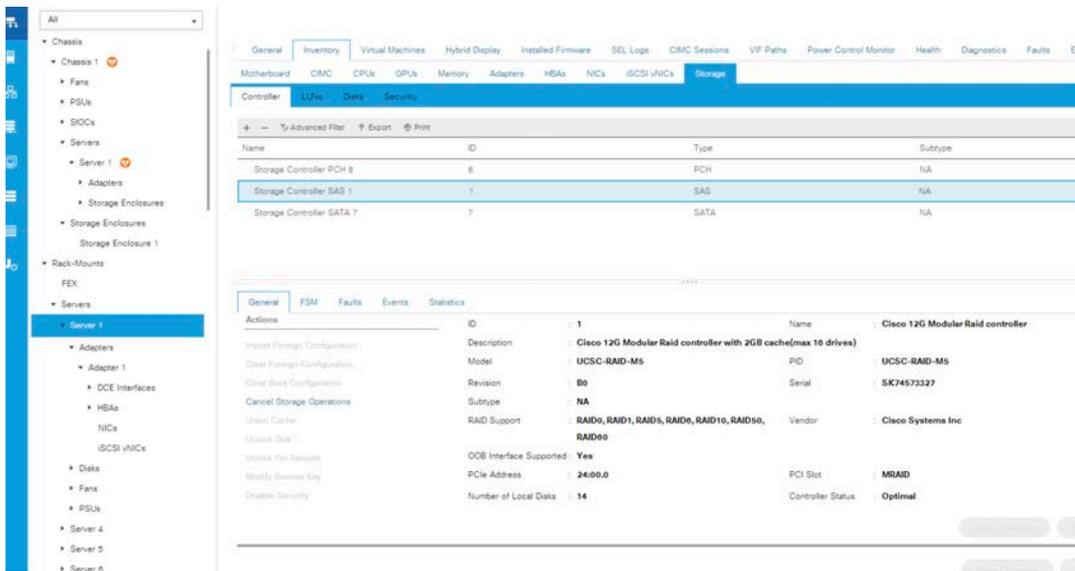
General Inventory Virtual Machines Hybrid Display Installed Firmware SEL Logs CIMC Sessions VIF Paths Power Control Monitor Health

Motherboard CIMC CPUs GPUs Memory Adapters HBAs NICs iSCSI vNICs Storage

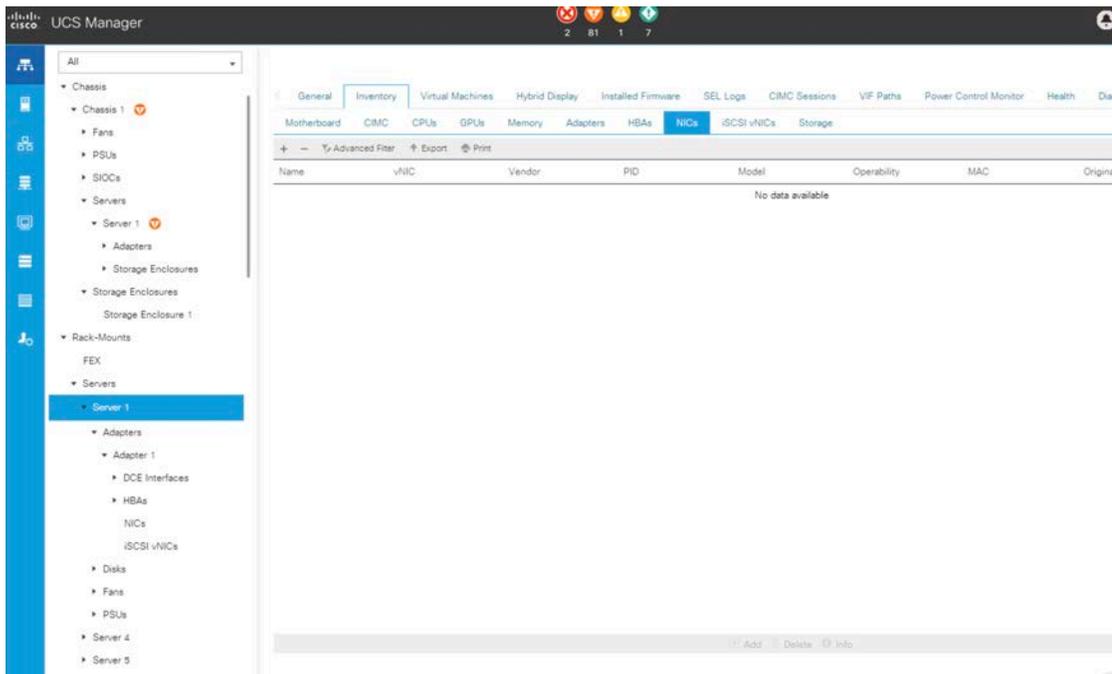
Advanced Filter Export Print

Name	Vendor	PID	Serial	Overall Status	Operability
Adapter 1	Cisco Systems Inc	UCSC-MLOM-C40Q-03	FCH2147J38Q	N/A	N/A

5. On the Inventory > Storage > Controller tab, confirm the presence of the Cisco 12-Gbps modular RAID controller with a 2-GB cache.



- In a standalone configuration, the Cisco UCS VIC 1387 includes predefined vNICs and virtual host bus adapters (vHBAs). In a configuration managed by Cisco UCS, however, nothing is defined. This definition is part of the service profile configuration. If PCIe cards for networking or Fibre Channel are installed, the information is listed on the NICs and HBAs tabs. View the tabs.

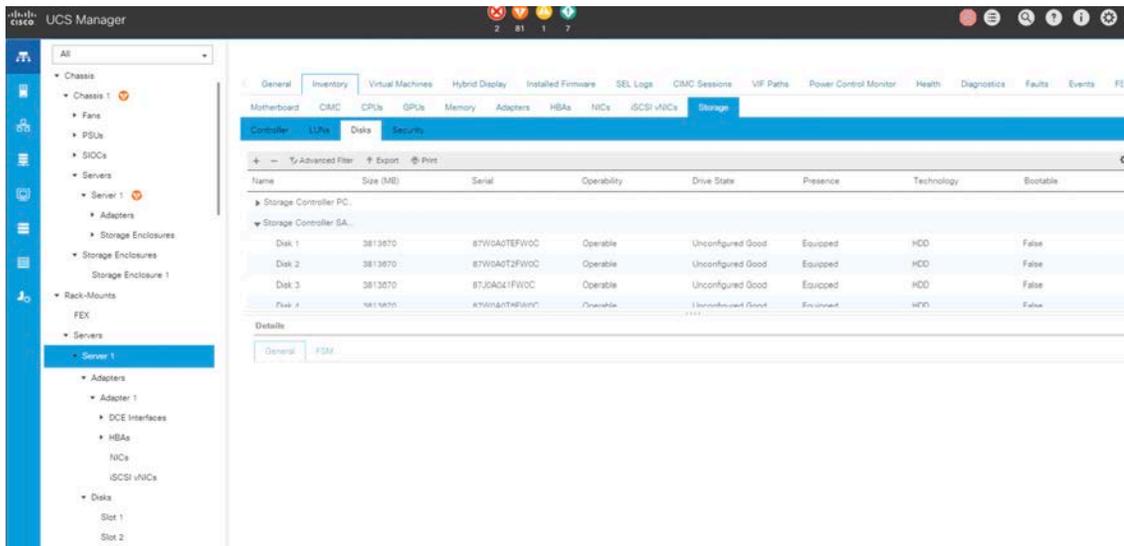


Identify physical disks for the OS installation

To complete the storage configuration discussed later in this document, you need to identify the physical disks available for the operating system installation. The Cisco UCS C240 M5 LFF rack server comes with four disk slots at the rear, with disk numbers 13 through 14. In addition, using the service profile, you configure RAID 1 for the rear SSD, which are provisioned for the OS and Veeam installation. In the example here, the available disks are 13 and 14.

The server is equipped with 12 drives on the front, which are provisioned for the Veeam repository.

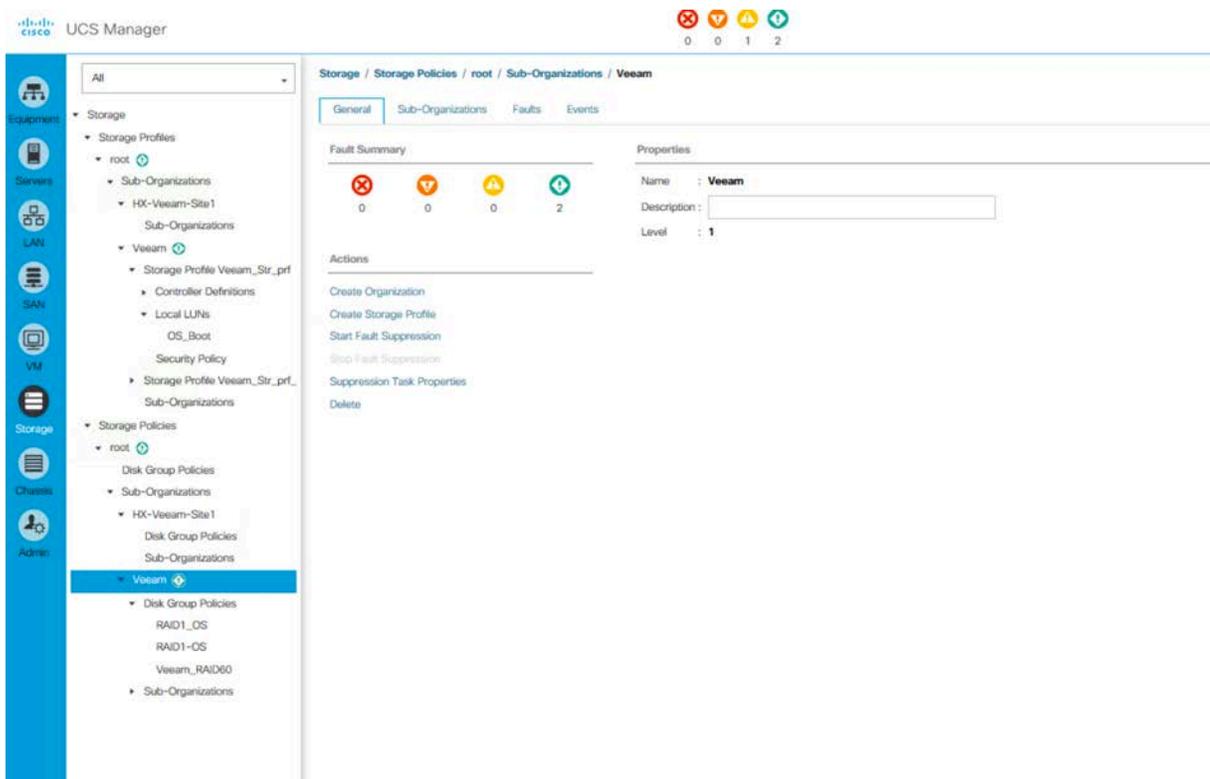
1. Under Inventory > Storage > Storage Controller SAS1, verify the use of 12 x 4-TB drives and 2 x 400-GB SSDs (for boot).
2. If the disks are in JBOD mode, select all the disks and mark them as “Set JBOD to Unconfigured Good.”



Define disk groups and logical unit numbers

The next step is to define the disk groups and logical unit numbers (LUNs) in the storage area of Cisco UCS Manager. This is the most important part of the Cisco UCS C240 configuration for the Veeam Availability Suite solution.

1. Choose Storage > Storage Policies > root > Sub-Organizations > Veeam > Disk Group Policies and click Add.



- 2. The first disk group policy is for the two disks in the back of the chassis. Create the policy.
 - a. Enter an obvious name and a description.
 - b. For the RAID level, select RAID 1 Mirrored.
 - c. Select Disk Group Configuration (Manual) and click Add.

Create Disk Group Policy ?

Name :

Description :

RAID Level :

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

Disk Group Configuration (Manual)

Slot Number	Role	Span ID
No data available		

Virtual Drive Configuration

Strip Size (KB) :

Access Policy : Platform Default Read Write Read Only Blocked

- d. Enter slot number 13, available to the server (see the equipment information), and click OK.

Create Local Disk Configuration Reference ? X

Slot Number : [1-205]

Role : Normal Dedicated Hot Spare Global Hot Spare

Span ID : [0-8]

- e. Repeat the same process for slot 14 and click OK.

Create Disk Group Policy ? X

Name :

Description :

RAID Level :

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

Disk Group Configuration (Manual)

Slot Number	Role	Span ID
13	Normal	Unspecified
14	Normal	Unspecified

Virtual Drive Configuration

Strip Size (KB) :

Access Policy : Platform Default Read Write Read Only Blocked

f. Set the following parameters:

- Access Policy: Read Write
- Read Policy: Read Ahead
- Write Cache Policy: Write Back Good BBU
- IO Policy: Cached
- Drive Cache: Platform Default (Any other option will cause a failure because the drive cache on SSDs cannot be changed.)

g. Click OK.

Create Disk Group Policy



Disk Group Configuration (Manual)

Slot Number	Role	Span ID
13	Normal	Unspecified
14	Normal	Unspecified

Virtual Drive Configuration

Strip Size (KB) : Platform Default
 Access Policy : Platform Default Read Write Read Only Blocked
 Read Policy : Platform Default Read Ahead Normal
 Write Cache Policy : Platform Default Write Through Write Back Good Bbu Always Write Back
 IO Policy : Platform Default Direct Cached
 Drive Cache : Platform Default No Change Enable Disable

3. For the purposes of this document, configure one disk group for all front-facing drives and use RAID 6 with dual parity as the RAID level for 11 disk drives. Disk 12 will be used as a hot spare.
 - a. Click Add for the configuration with 12 disk drives.
 - b. Enter an obvious name and a description.
 - c. For RAID Level, select RAID 6 Striped Dual Parity.
 - d. Select Disk Group Configuration (Automatic).
 - e. Set the following parameters:
 - Number of drives: **11**
 - Enter **1** as the Number of Dedicated Hot Spares: **1**
 - Drive Type: HDD
 - f. Scroll down.

Create Disk Group Policy ? X

Name :

Description :

RAID Level :

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

Disk Group Configuration (Automatic)

Number of drives : [0-00]

Drive Type : Unspecified HDD SSD

Number of Dedicated Hot Spares : [0-00]

Number of Global Hot Spares : [0-00]

Min Drive Size (GB) : [0-10240]

Use Remaining Disks :

Use JBOD Disks : Yes No

Virtual Drive Configuration

Strip Size (KB) :

Access Policy : Platform Default Read Write Read Only Blocked

Read Policy : Platform Default Read Ahead Normal

g. Set the following parameters:

- Stripe Size: 64 KB
- Access Policy: Read Write
- Read Policy: Read Ahead
- Write Cache Policy: Write Back Good BBU
- IO Policy: Cached
- Drive Cache: Platform Default

h. Click OK.

Create Disk Group Policy



Disk Group Configuration (Automatic)

Number of drives : [0-60]

Drive Type : Unspecified HDD SSD

Number of Dedicated Hot Spares : [0-60]

Number of Global Hot Spares : [0-60]

Min Drive Size (GB) : [0-10240]

Use Remaining Disks :

Use JBOD Disks : Yes No

Virtual Drive Configuration

Strip Size (KB) :

Access Policy : Platform Default Read Write Read Only Blocked

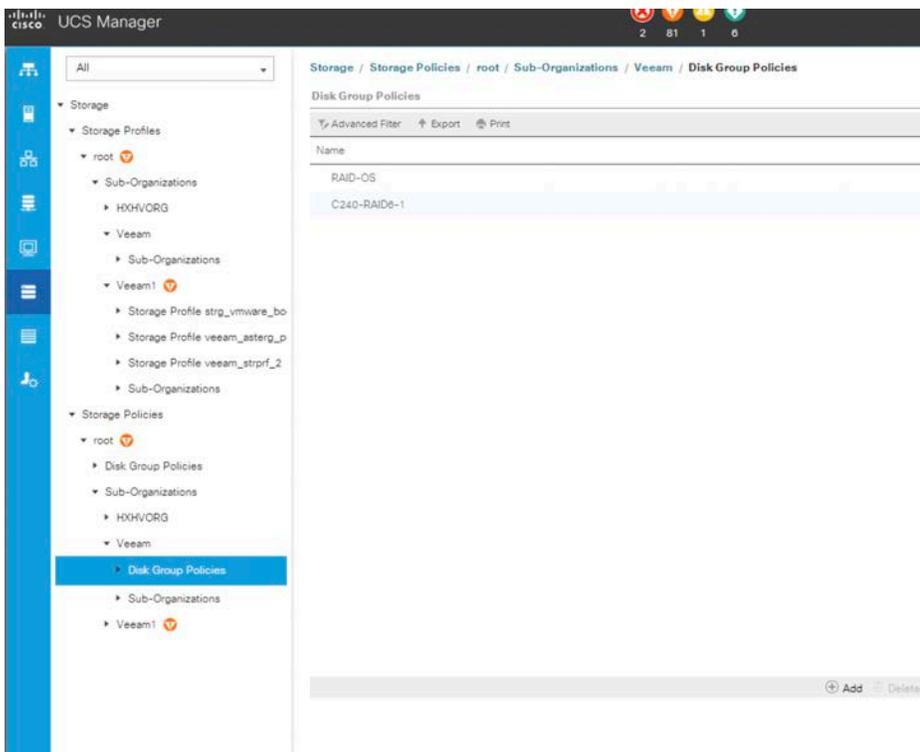
Read Policy : Platform Default Read Ahead Normal

Write Cache Policy : Platform Default Write Through Write Back Good Bbu Always Write Back

IO Policy : Platform Default Direct Cached

Drive Cache : Platform Default No Change Enable Disable

Security :



The LUNs are created for the disk groups. Table 2 and Table 3 summarize the required LUNs and their sizes.

Table 2. Disk group C240-Boot with disks 13 and 14 (SSDs in the back of the server)

Disk group	Size	Name
C240-Boot	Fill to maximum	Boot

Table 3. Disk group C240-RAID6-1 with top-loaded disks 1 through 14

Disk group	Size	Name
C240-RAID6-1	Fill to maximum	Veeam_Rep

- Go to Storage > Storage Profiles > root > Sub-Organizations > Veeam and click Create Storage Profile.

Create Storage Profile ? X

Name :

Description :

LUNs

Local LUNs | Controller Definitions | Security Policy

Advanced Filter | Export | Print ⚙️

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

+ Add | Delete | Info

OK | Cancel

- Click Add to create LUNs.
- Select Create Local LUN.
- For the name, enter **RAID1_OS**.
- Select Expand to Available. This setting allows the maximum possible size of LUN created through the selected disk group configuration.
- Select RAID1-OS as the disk group policy. This configuration was created through a pair of back-side SSDs (slots 13 and 14) on the C240 M5 LFF.

Create Local LUN



Create Local LUN Prepare Claim Local LUN

Name : RAID1_OS

Size (GB) : 1 [0-245760]

Fractional Size (MB) : 0

Auto Deploy : Auto Deploy No Auto Deploy

Expand To Available :

Select Disk Group Configuration : RAID-OS [Create Disk Group Policy](#)

OK

Cancel

10. Click Add again to create the LUN for the Veeam repository mapped to the front-facing HDD.
11. Select Create Local LUN.
12. For the name, enter **Veeam_Rep**.
13. Select Expand to Available. This setting allows the maximum possible size of LUN created through the selected disk group configuration.
14. Select C240-RAID6-1 as the disk group policy. This disk group policy was created for the front-facing HDD on the C240 M5 LFF.

Create Local LUN



Create Local LUN Prepare Claim Local LUN

Name :

Size (GB) : **[0-245760]**

Fractional Size (MB) :

Auto Deploy : Auto Deploy No Auto Deploy

Expand To Available :

Select Disk Group Configuration : [Create Disk Group Policy](#)

15. Click OK.

Create Storage Profile ? X

Name :

Description :

LUNs

Local LUNs			
Controller Definitions			
Security Policy			
Advanced Filter Export Print ⚙️			
Name	Size (GB)	Order	Fractional Size (MB)
Veeam_Rep	1	Not Applicable	0
RAID1_OS	Unspecified	Not Applicable	0

⊕ Add 🗑️ Delete ℹ️ Info

OK

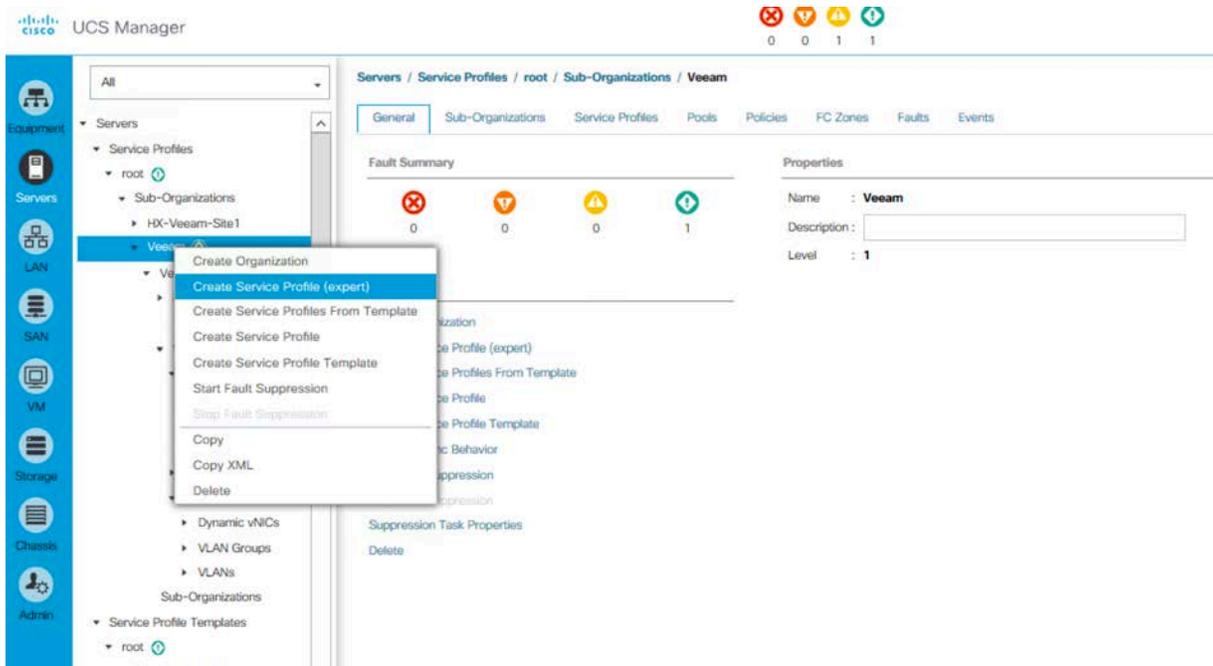
Cancel

16. Click OK to finalize the storage profile.

Create a service profile

The final configuration step in Cisco UCS Manager is creating a service profile.

1. Go to Servers > root > Sub-Organizations > Veeam and click Create Service Profile (expert).



2. Enter an obvious name.
3. For UUID Assignment, select a universal user ID (UUID) pool with free IDs.
4. Click Next.

Create Service Profile (expert) ? ×

You must enter a name for the service profile. You can also specify how a UUID will be assigned to this profile and enter a description of the profile.

Name :

The service profile will be created in the following organization. Its name must be unique within this organization.
Where : **org-root/org-Veeam**

Specify how the UUID will be assigned to the server associated with this service profile.
UUID

UUID Assignment:

[Create UUID Suffix Pool](#)
The UUID will be assigned from the selected pool.
The available/total UUIDs are displayed after the pool name.

Optionally enter a description for the profile. The description can contain information about when and where the service profile should be used.

< Prev Next > Finish Cancel

5. In the Storage Provisioning section, click the Storage Profile Policy tab.
6. Select the storage profile that you want (in the example here, Veeam_Str_Prfl is used).
7. Click Next.

Create Service Profile (expert)

Optionally specify or create a Storage Profile, and select a local disk configuration policy.

Specific Storage Profile | **Storage Profile Policy** | Local Disk Configuration Policy

Storage Profile: **Veeam_Str_prf** Create Storage Profile

Name: **Veeam_Str_prf**
Description: **Storage Profile for Veeam**

LUNs

Local LUNs | Controller Definitions | Security Policy

Advanced Filter | Export | Print

Name	Size (GB)	Order	Fractional Size (MB)
RAID1_OS	Unspecified	Not Applicable	0
Veeam_Rep	1	Not Applicable	0

< Prev | Next > | **Finish** | Cancel

8. In the Networking section, click the Expert button.

9. Click Add.

Create Service Profile (expert)

Optionally specify LAN configuration information.

Dynamic vNIC Connection Policy: **Select a Policy to use (no Dynamic vNIC Policy by default)**

Create Dynamic vNIC Connection Policy

How would you like to configure LAN connectivity?
 Simple **Expert** No vNICs Hardware Inherited Use Connectivity Policy

Click **Add** to specify one or more vNICs that the server should use to connect to the LAN.

Name	MAC Address	Fabric ID	Native VLAN
No data available			

Delete | **Add** | Modify

+ iSCSI vNICs

< Prev | Next > | **Finish** | Cancel

10. Enter **eth0** as the name.

11. Select a MAC address pool with free addresses.
12. Select Fabric A as the fabric ID and select the Enable Failover checkbox.
13. Select you backup network (the example here uses hx-inband-mgmt) and click the Native VLAN button.

Create vNIC ? X

Name :

MAC Address

MAC Address Assignment:

[Create MAC Pool](#)
The MAC address will be automatically assigned from the selected pool.

Use vNIC Template :

Fabric ID : Fabric A Fabric B Enable Failover

VLAN in LAN cloud will take the precedence over the Appliance Cloud when there is a name clash.

VLANs | **VLAN Groups**

Advanced Filter | Export | Print

Select	Name	Native VLAN
<input type="checkbox"/>	Backup_VLAN	<input type="radio"/>
<input type="checkbox"/>	default	<input type="radio"/>
<input checked="" type="checkbox"/>	hx-inband-mgmt	<input checked="" type="radio"/>
<input type="checkbox"/>	hx-storage-data	<input type="radio"/>

CDN Source : vNIC Name User Defined

MTU :

Pin Group : [Create LAN Pin Group](#)

Operational Parameters

14. Enter 1500 or 9000 for the MTU value. MTU 9000 works only if all network components and the server are configured with MTU 9000. Check with your network administrator and server administrator to determine which value to use.
15. For Adapter Policy, select Windows.
16. Set QoS Policy and Network Control Policy as defined by your local network administrator.
17. Click OK.

Create vNIC



Fabric ID: Fabric A Fabric B Enable Failover

VLAN in LAN cloud will take the precedence over the Appliance Cloud when there is a name clash.

VLANs | VLAN Groups

Advanced Filter | Export | Print

Select	Name	Native VLAN
<input type="checkbox"/>	Backup_VLAN	<input type="radio"/>
<input type="checkbox"/>	default	<input type="radio"/>
<input checked="" type="checkbox"/>	hx-inband-mgmt	<input checked="" type="radio"/>
<input type="checkbox"/>	hx-storage-data	<input type="radio"/>

CDN Source: vNIC Name User Defined

MTU : 9000

Warning

Make sure that the MTU has the same value in the QoS System Class corresponding to the Egress priority of the selected QoS Policy.

Pin Group : <not set> [Create LAN Pin Group](#)

Operational Parameters

Adapter Performance Profile

Adapter Policy : Windows [Create Ethernet Adapter Policy](#)

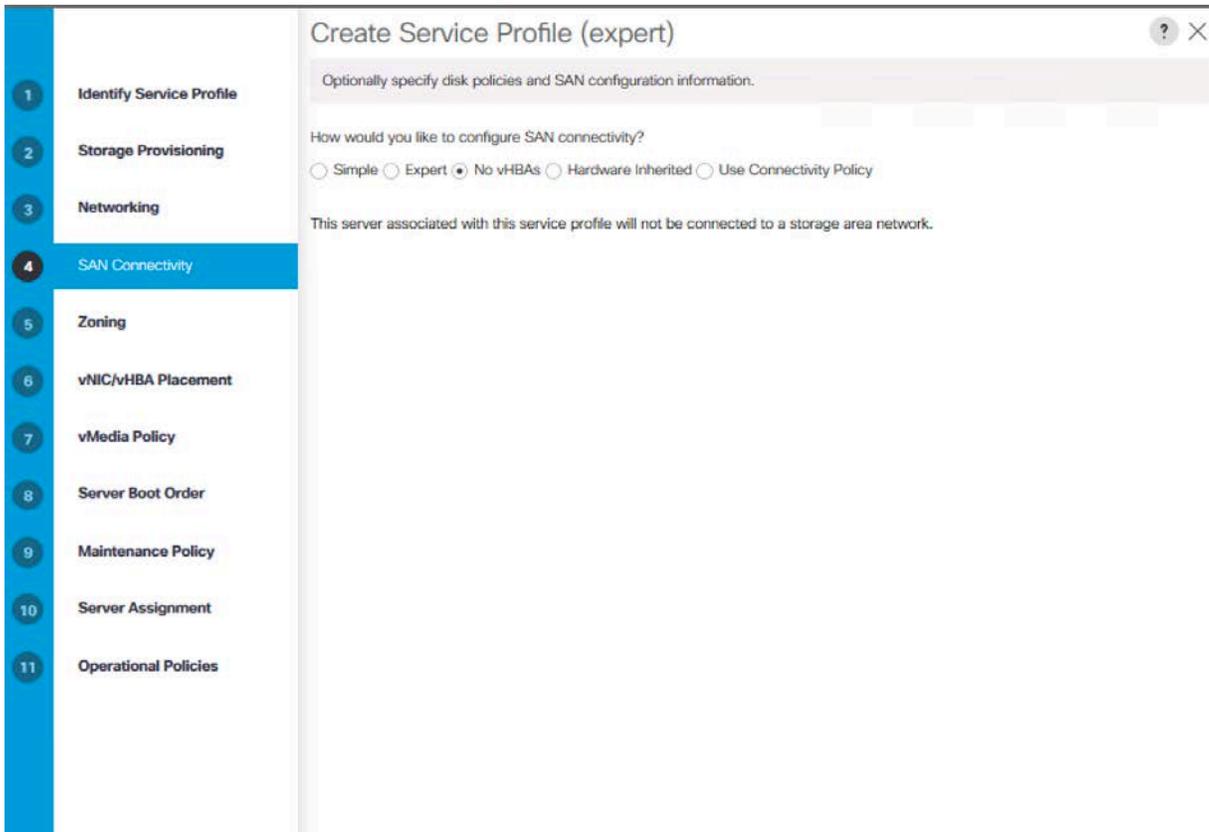
QoS Policy : Veeam-Silver [Create QoS Policy](#)

Network Control Policy : <not set> [Create Network Control Policy](#)

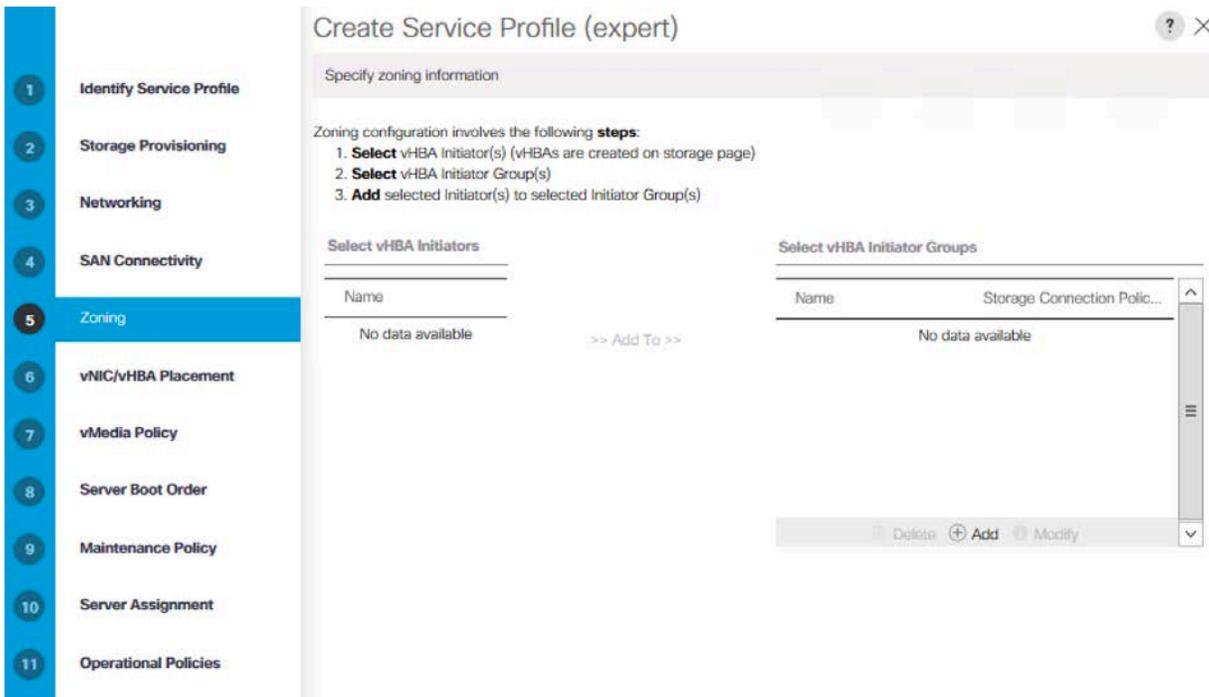
Connection Policies

OK Cancel

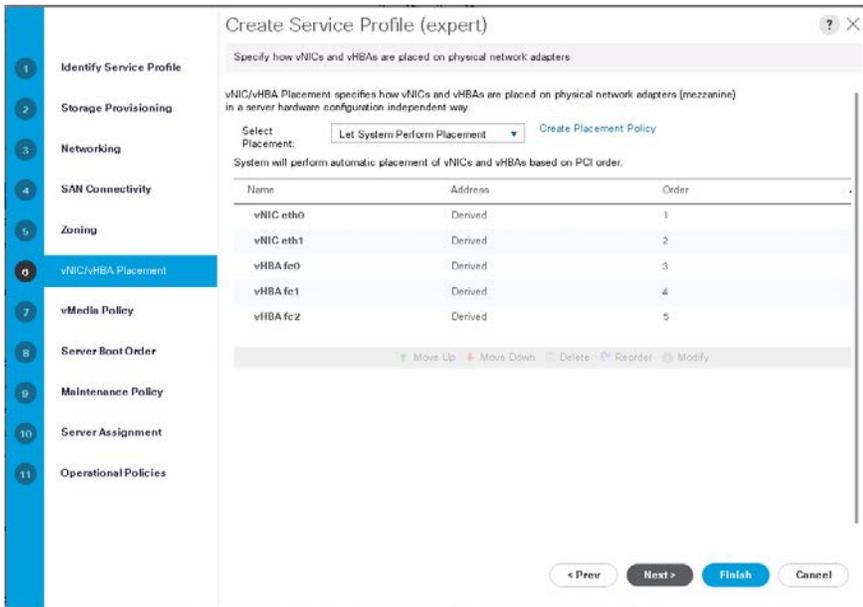
18. Click the SAN Connectivity section, select No vHBAs, and then click Next.



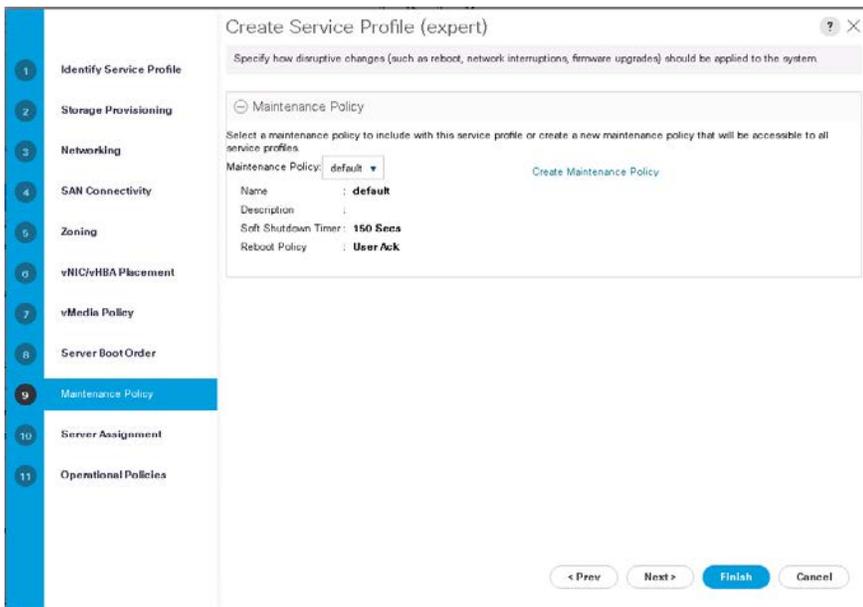
19. In the Zoning area, click Next.



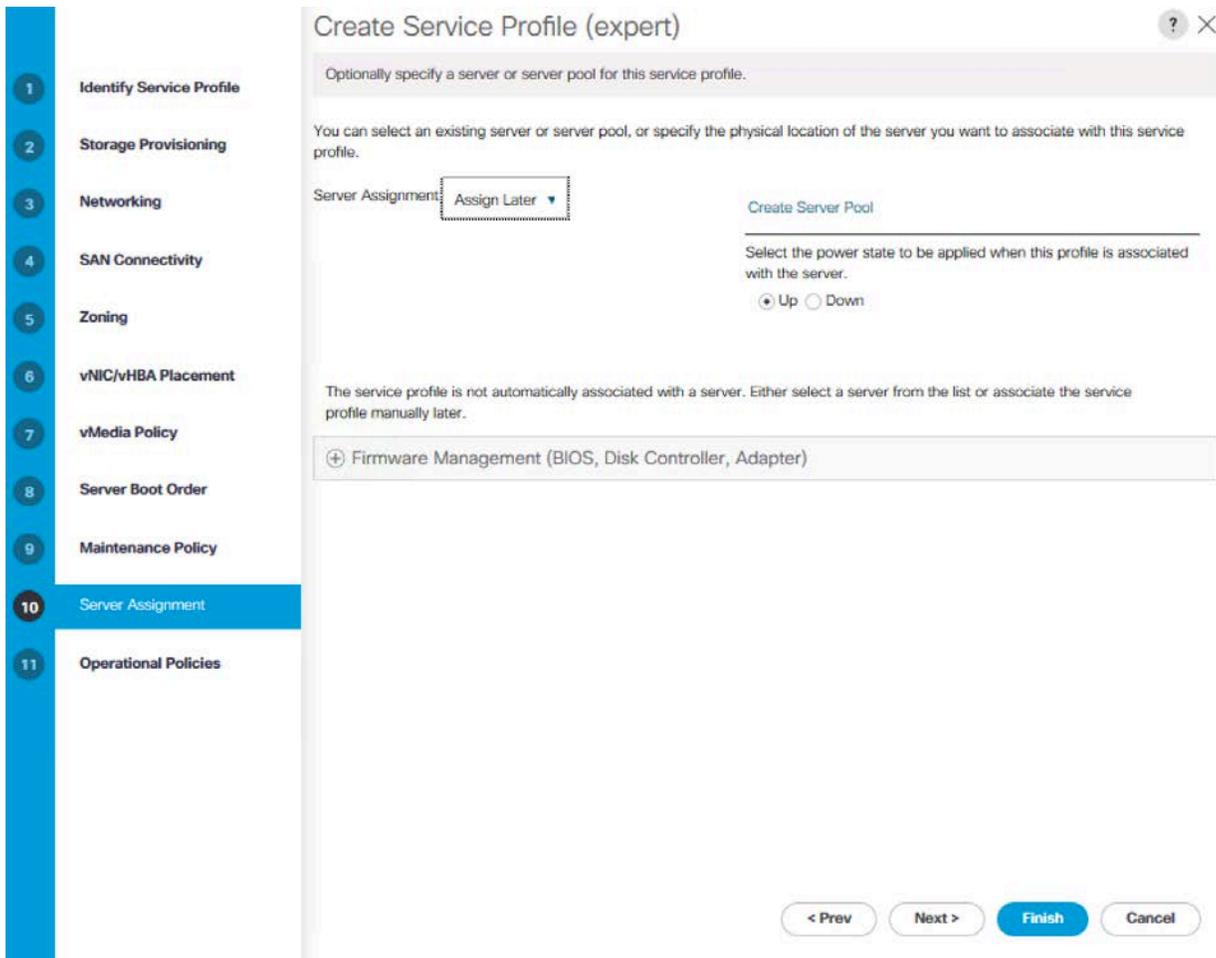
20. In the vMedia Policy section, click Next.



21. In the Server Boot Order section, select default. This setting allows a local boot.
22. In the Maintenance section, for Maintenance Policy, select default. Then click Next.

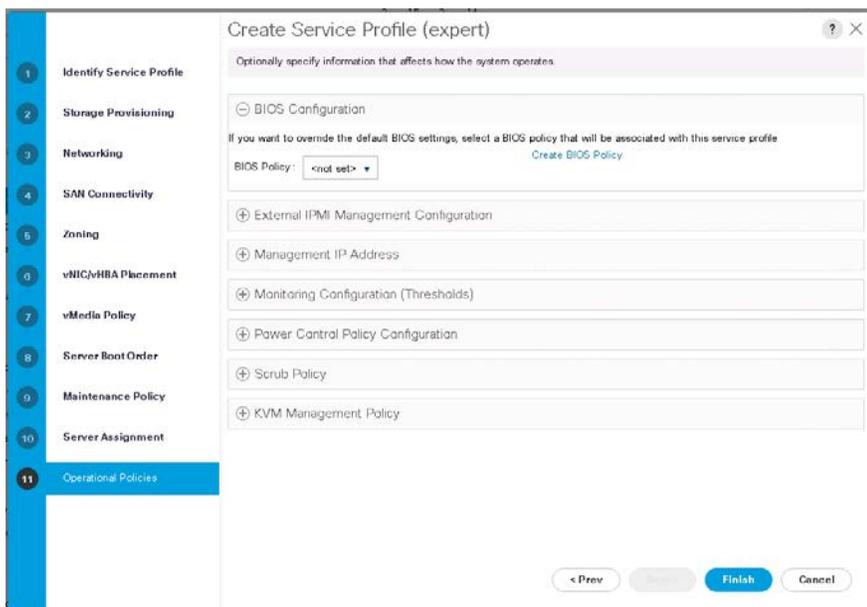


23. In the Server Assignment section, select Assign Later and then click Next.



24. In the Operational Policies section, select the policies required for your installation. Veeam does not require you to select any particular options.

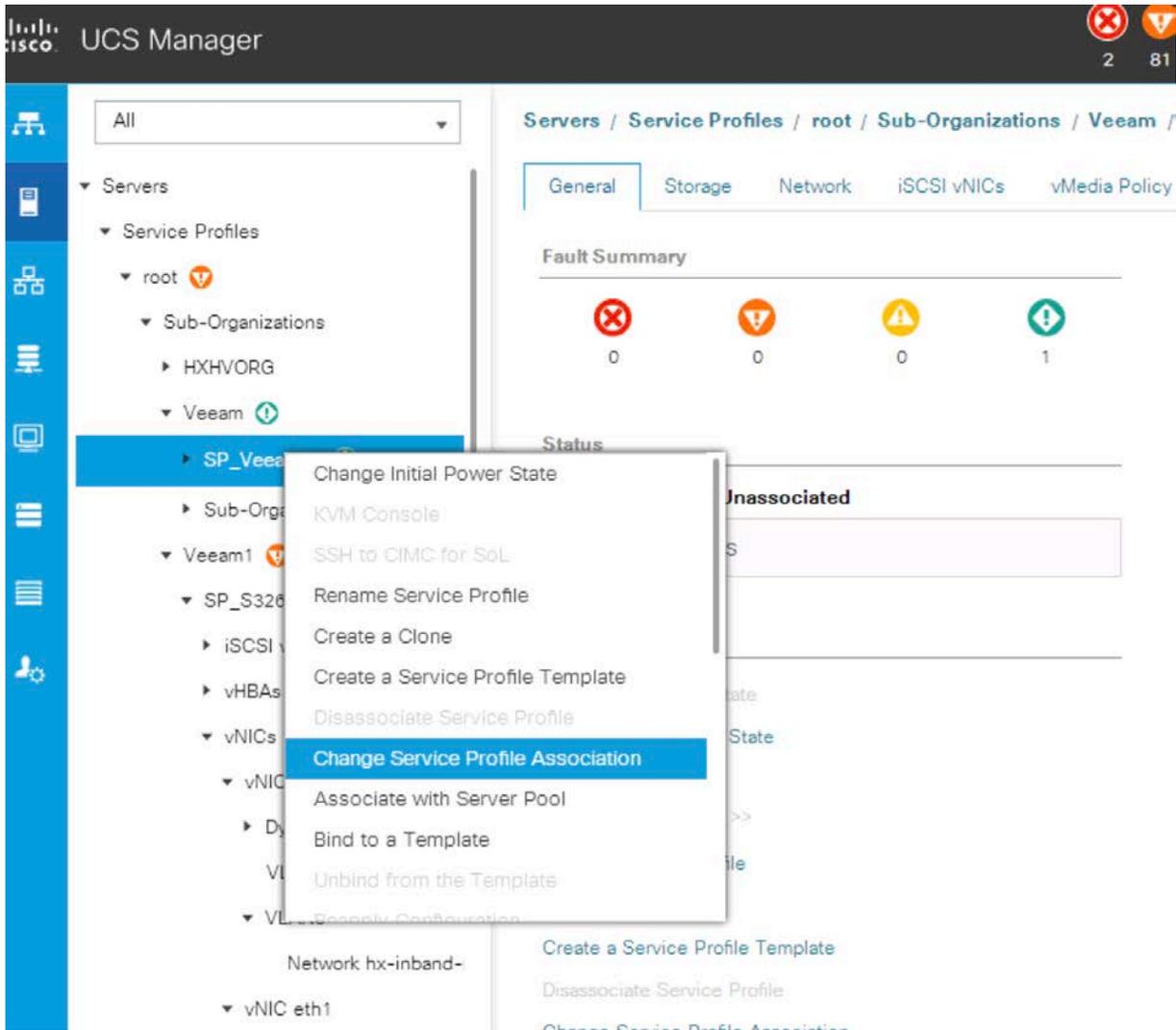
25. Click Finish.



Assign the service profile to the server

Now assign the service profile to the available C240 M5 server. Thereafter, you can assign the chassis server node to the previously created service profile.

1. Right-click the previously created service profile and choose Change Service Profile Association.



2. Select the available C240 M5 LFF server.

Associate Service Profile ? X

Select an existing server pool or a previously-discovered server by name, or manually specify a custom server by entering its chassis and slot ID. If no server currently exists at that location, the system waits until one is discovered.

You can select an existing server or server pool, or specify the physical location of the server you want to associate with this service profile.

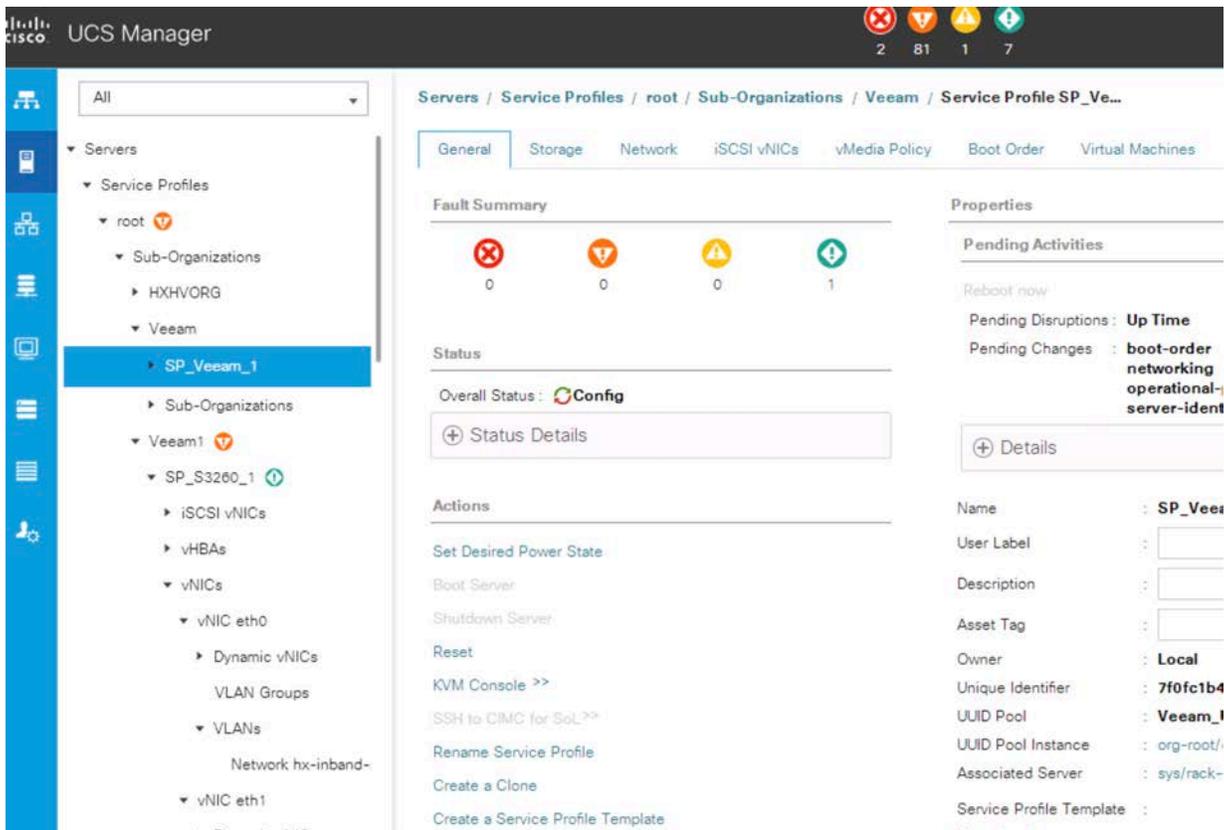
Server Assignment:

Available Servers All Servers

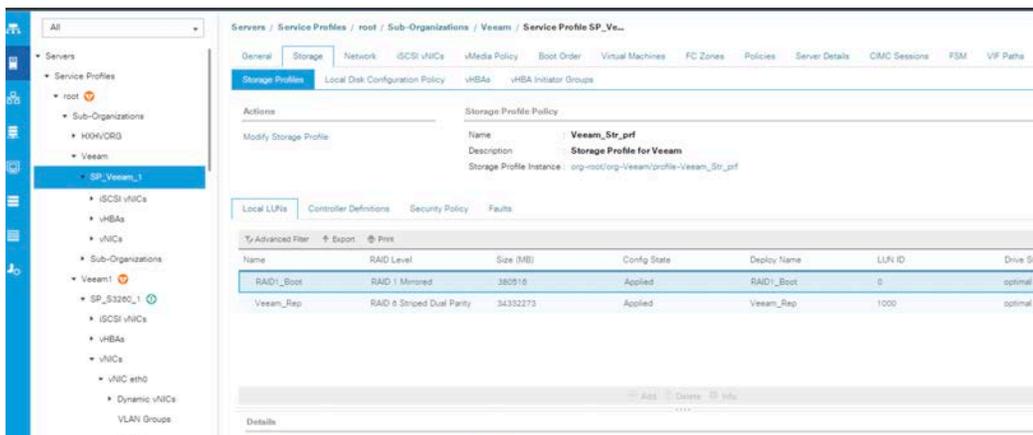
Select	Chassis ID	Slot	Rack ID	PID	Procs	Memory	Adapters
<input checked="" type="radio"/>			1	UCSC-C240-M5L	2	131072	1
<input type="radio"/>			4	HX220C-M5SX	2	393216	1
<input type="radio"/>			5	HX220C-M5SX	2	393216	1
<input type="radio"/>			6	HX220C-M5SX	2	393216	1
<input type="radio"/>			7	HX220C-M5SX	2	393216	1

Restrict Migration

3. Monitor the service profile association on the FSM tab. Figure below elaborates on the association of Service Profile to Cisco UCS C240 M5 Rack Server



4. Verify the association status and the LUNs created.

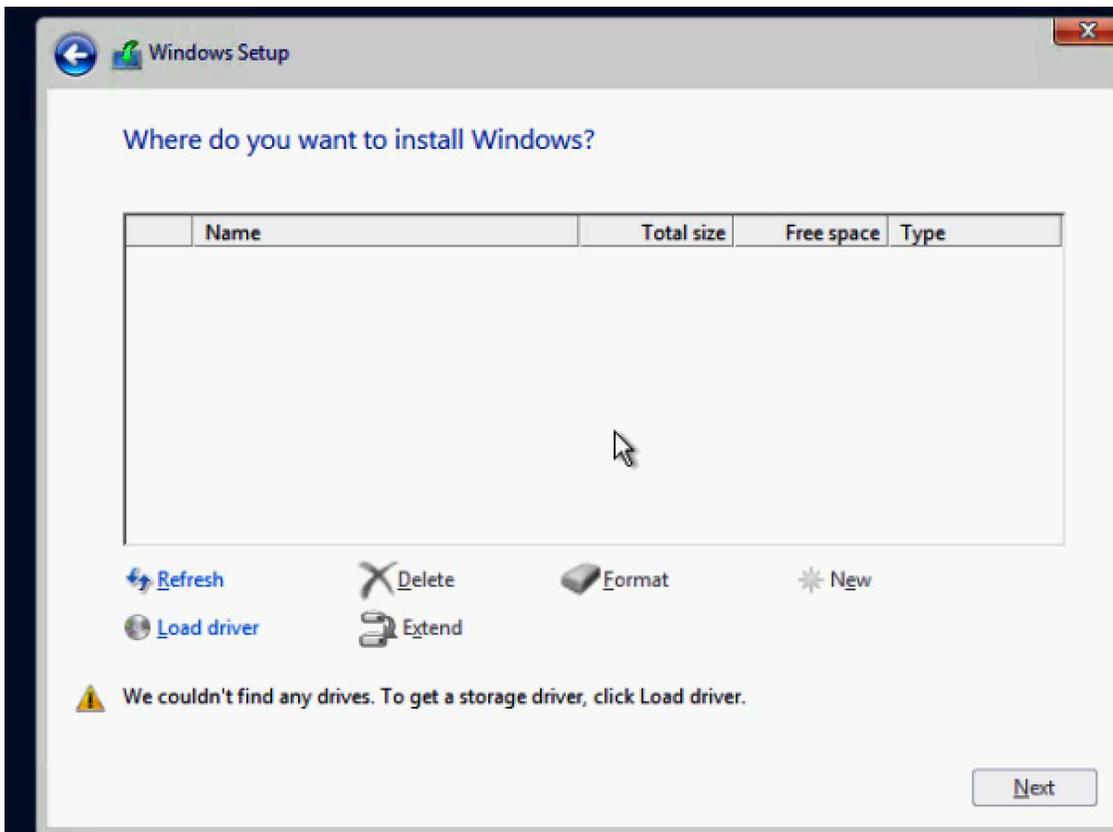


OS Installation & Configuration

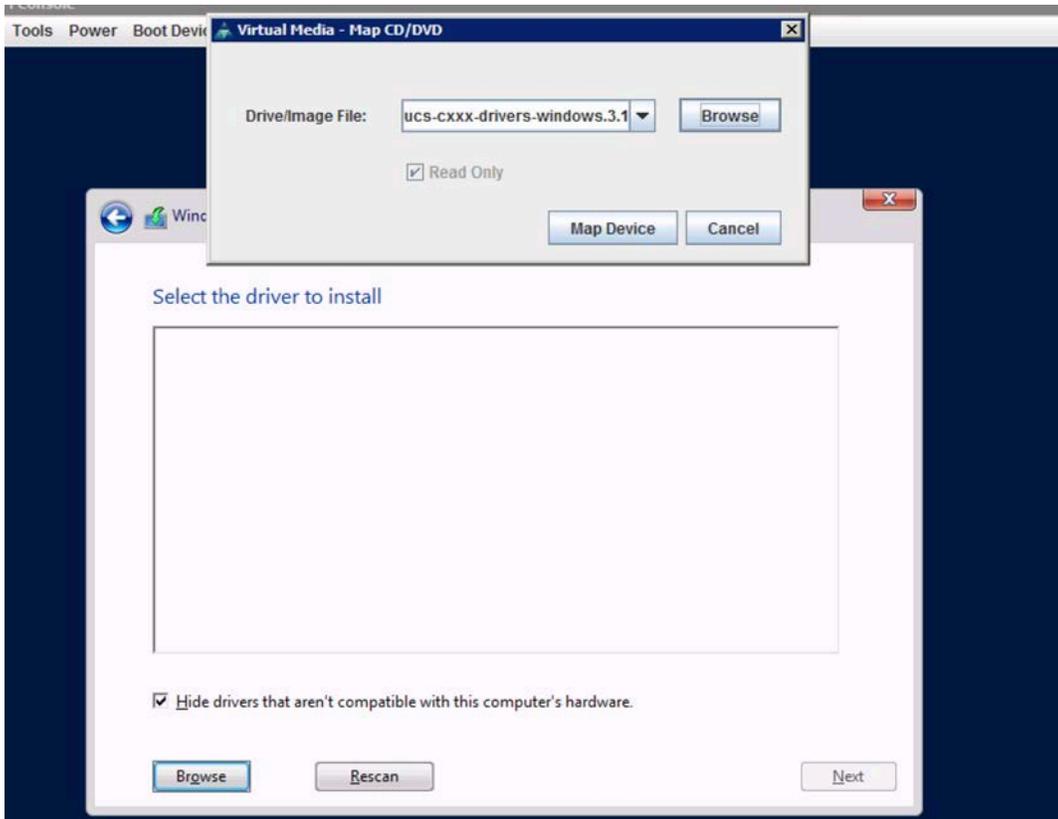
Install Microsoft Windows on the Cisco UCS server

After you have verified the service profile, you can proceed to the installation of Microsoft Windows 2016 on the C240 M5 server. Windows 2016 installation requires a valid C240 M5 RAID controller driver, which allows installation of the OS on the boot LUN. Follow the steps here to successfully install the RAID controller driver.

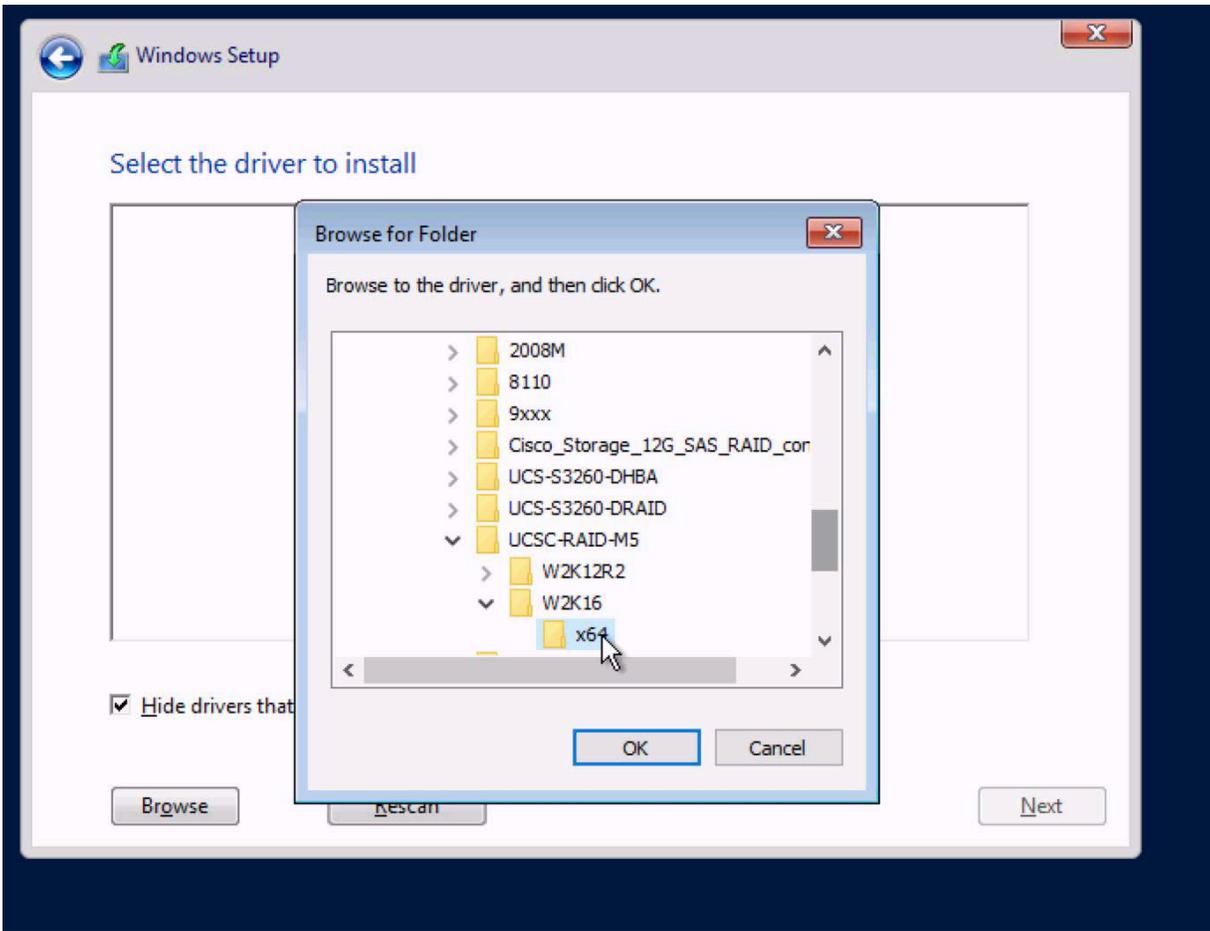
1. To load the RAID controller driver for the C240 M5, on the setup screen that asks “Where do you want to install Windows?” click “Load driver.”



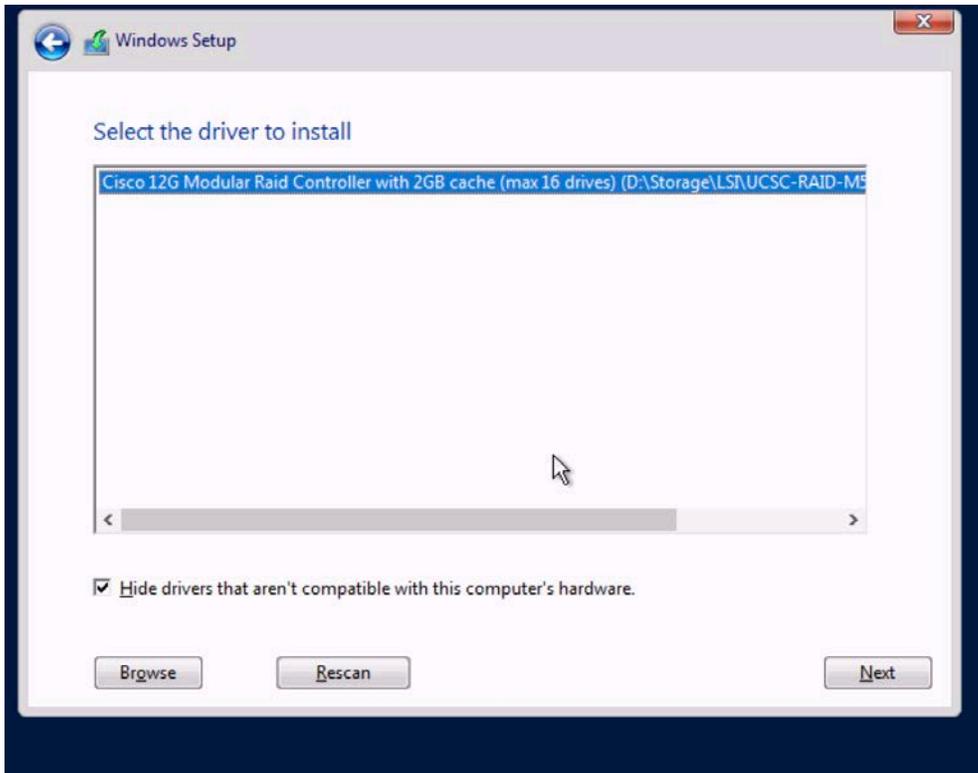
2. In Cisco UCS Manager, click the LAN tab in the navigation pane.
3. In Virtual Media window, unmap the Windows installer ISO file and map the C240 drivers ISO file. The drivers for the C240 can be downloaded from www.cisco.com. Go to Downloads Home Products Servers > Unified Computing > UCS C-Series Rack-Mount UCS-Managed Server Software > Unified Computing System (UCS) Drivers-3.1).



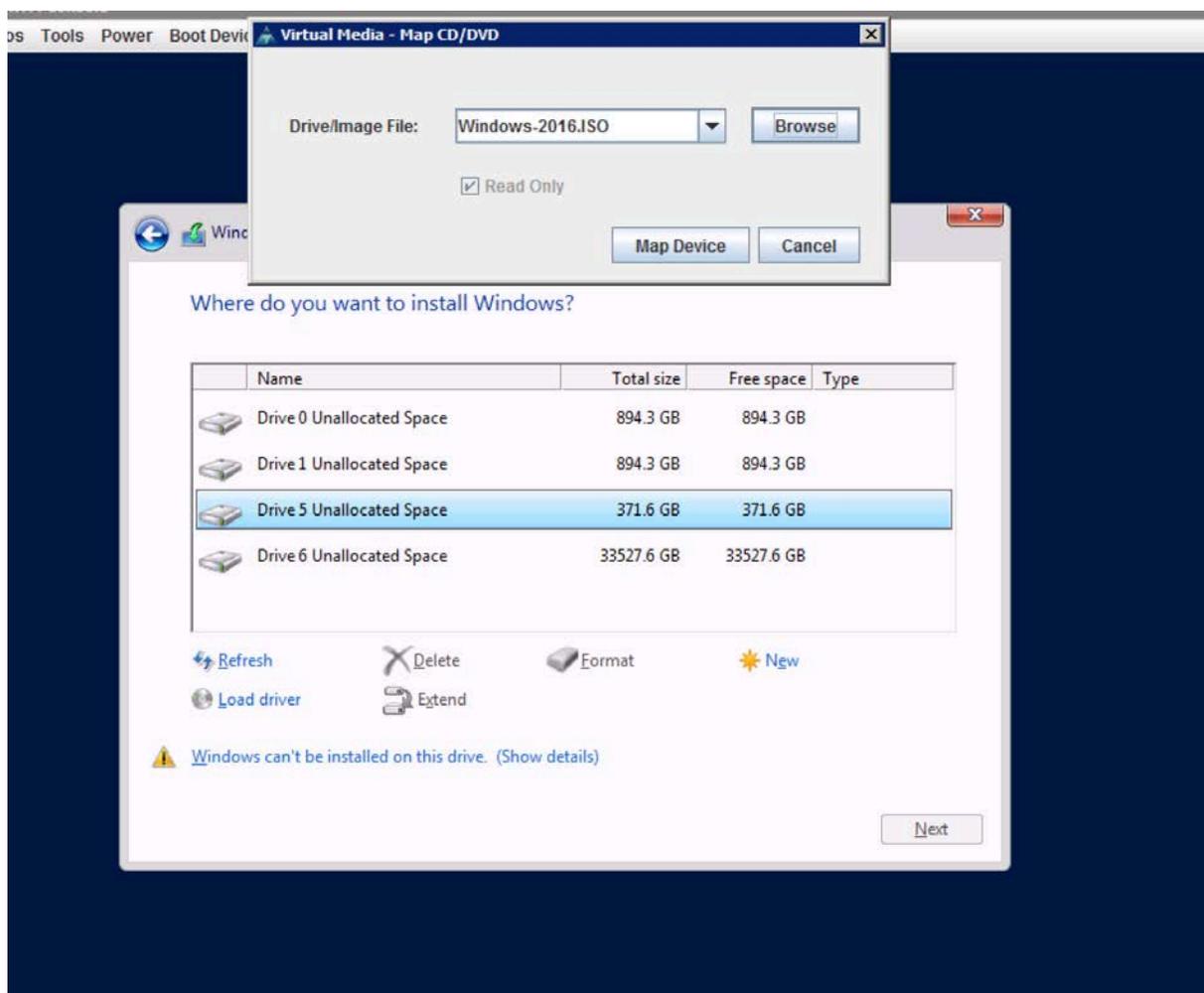
4. Click Browse and navigate to the location of the driver:



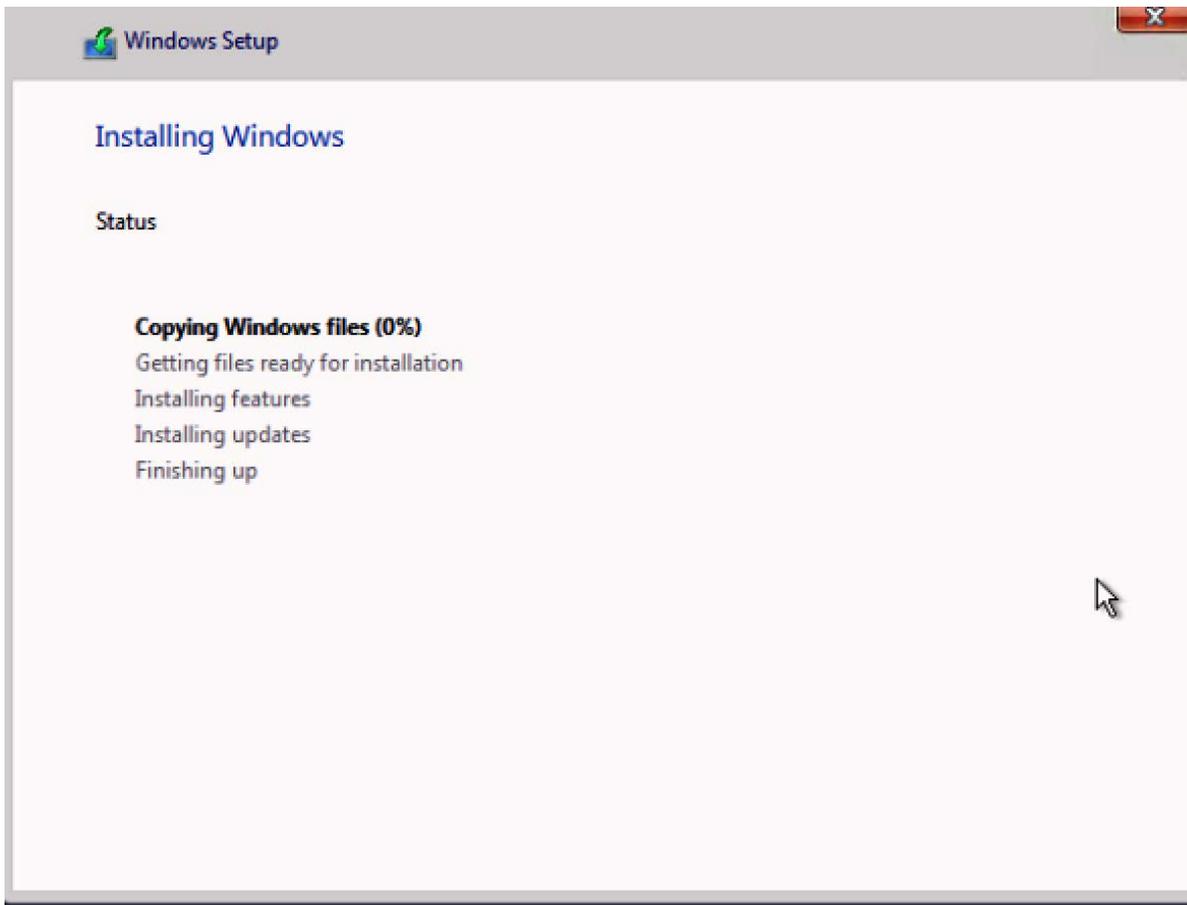
5. Click Rescan and view the correct RAID controller driver in the "Select the driver to install" window.



6. Click Next to install the driver.
7. Return to 'Where do you want to install Windows' screen, uncheck the driver ISO image, and remap the Windows Installer Image.
8. Click Refresh.



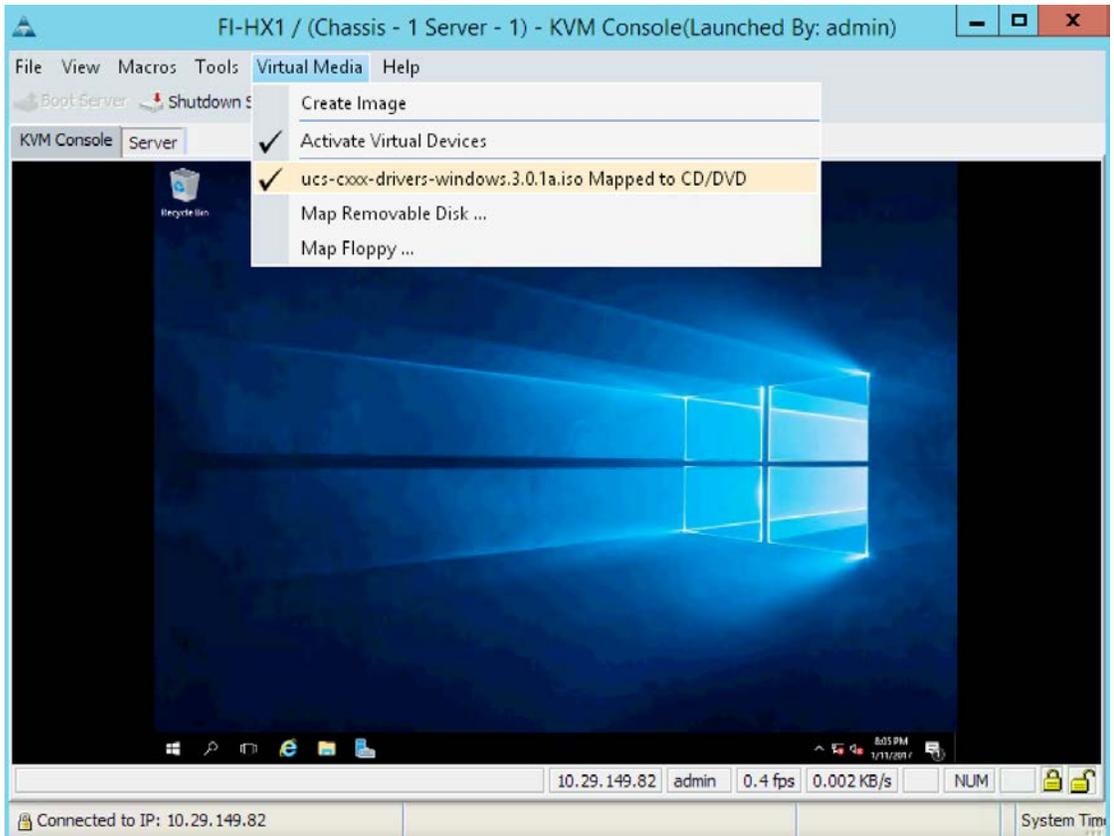
9. Select Drive5. This drive is the RAID 1 configuration created from the two SSDs in the rear of the C240 M5 LFF for OS installation through the storage profile in the Cisco UCS service profile. Drive6 is the RAID 6 configuration created from the front-facing drives.
10. Click Next.



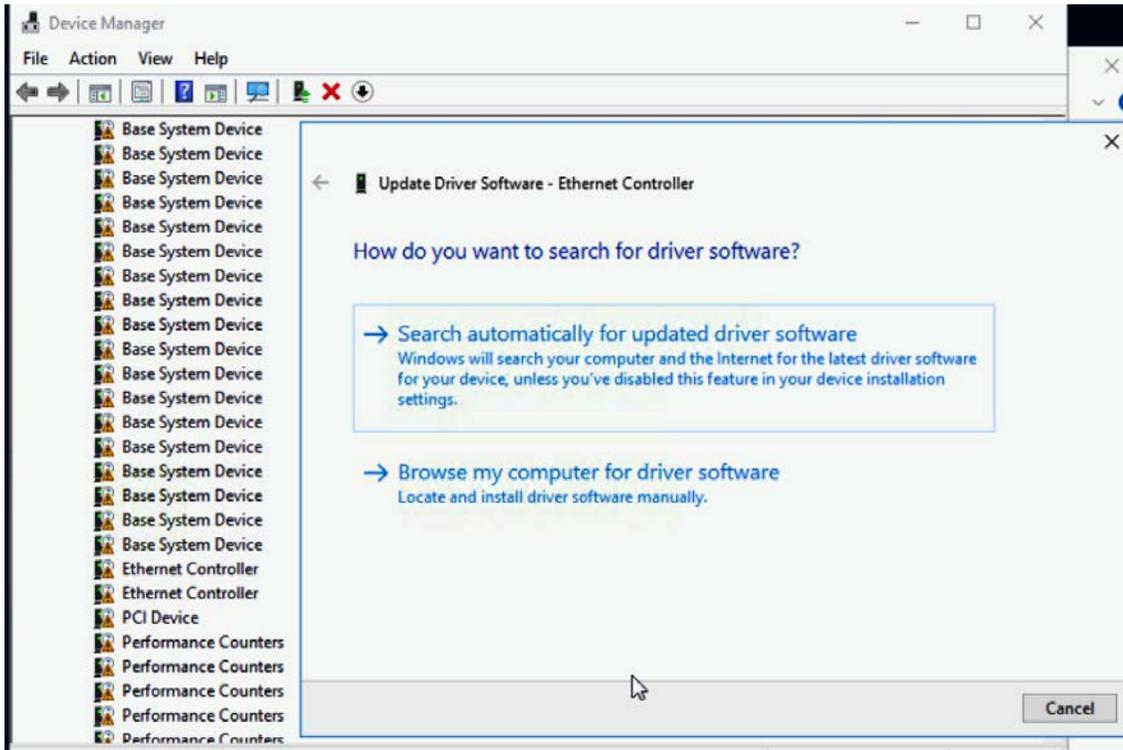
Update the Cisco UCS VIC driver

When the installation is complete, proceed to the next section: Update Cisco VIC Driver for Windows 2016. To update the Cisco VIC driver for Windows 2016, complete the following steps:

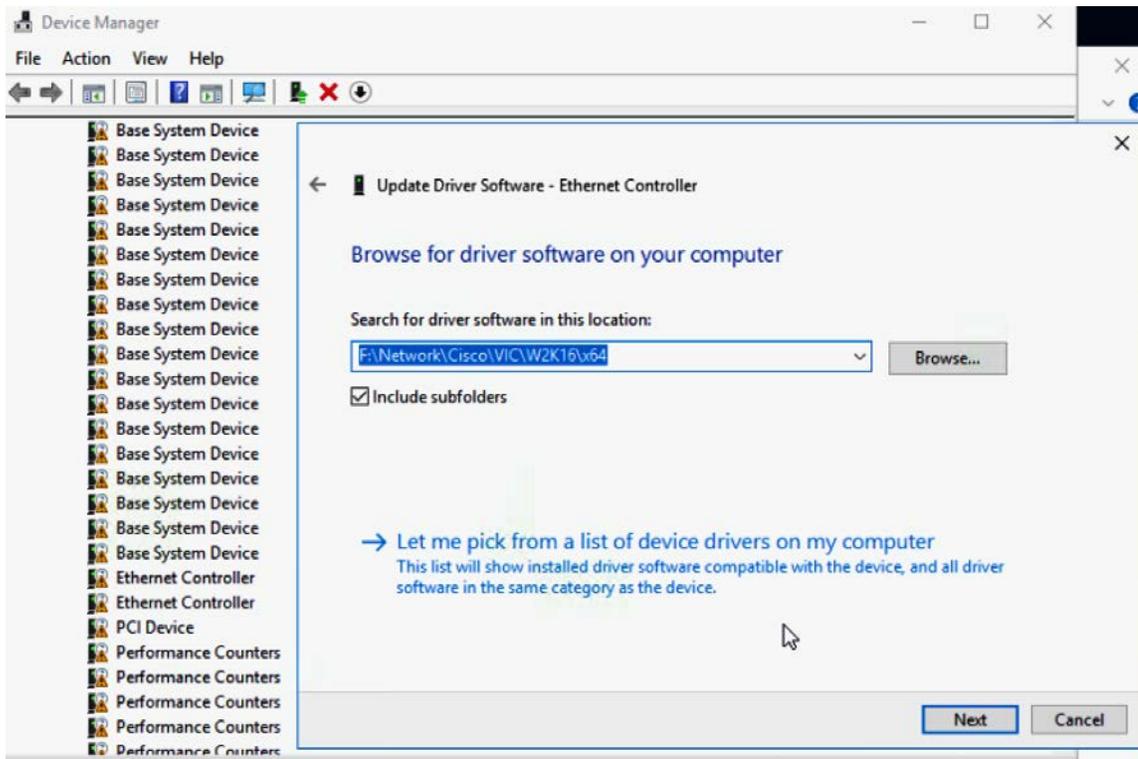
1. Open the UCS KVM console and log in to Windows 2016 installed on C240 M5 server.
2. Map the C240 M5 drivers through the Map CD/DVD option on the Virtual Media tab in the KVM console.



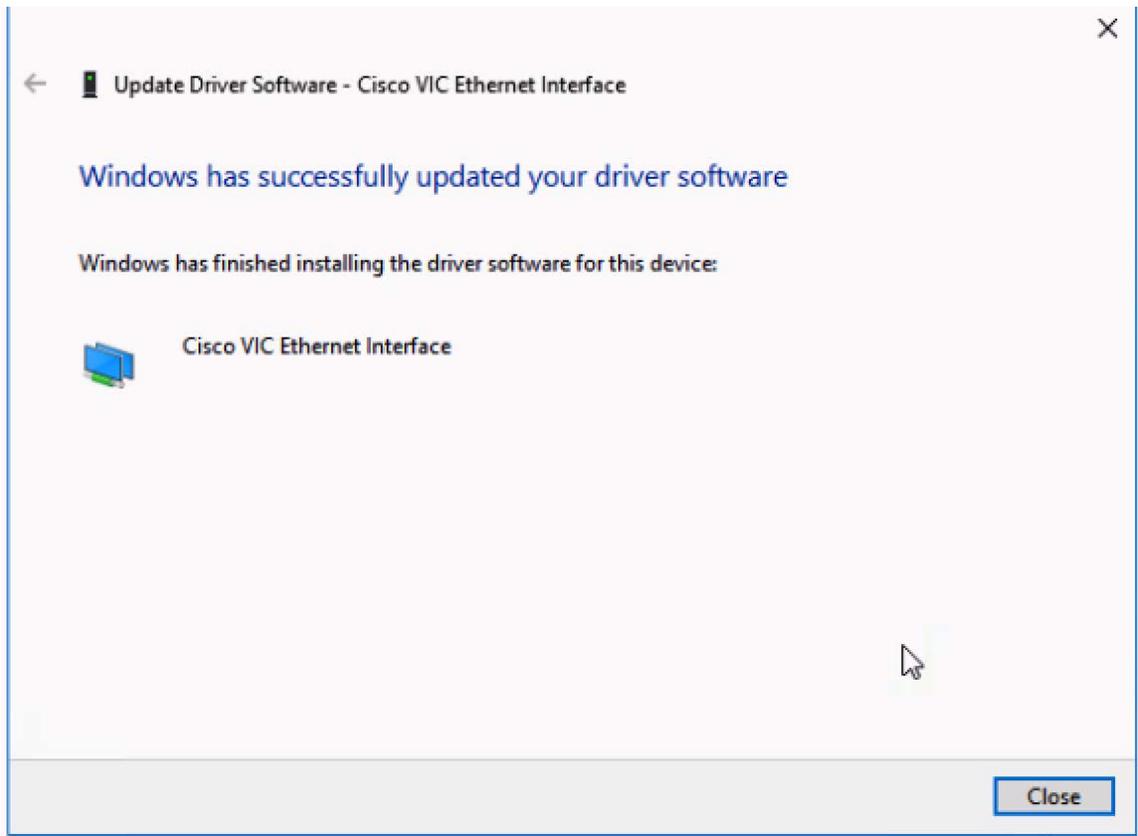
3. In Windows 2016, go to Control Panel > Device Manager.
4. Select Ethernet Controller and then select Update Driver Software.



5. Select "Browse for driver software on your computer."
6. Select the DVD driver mapped through virtual media in the KVM console and browse to \\Network\Cisco\VIC\W2K16\x64.



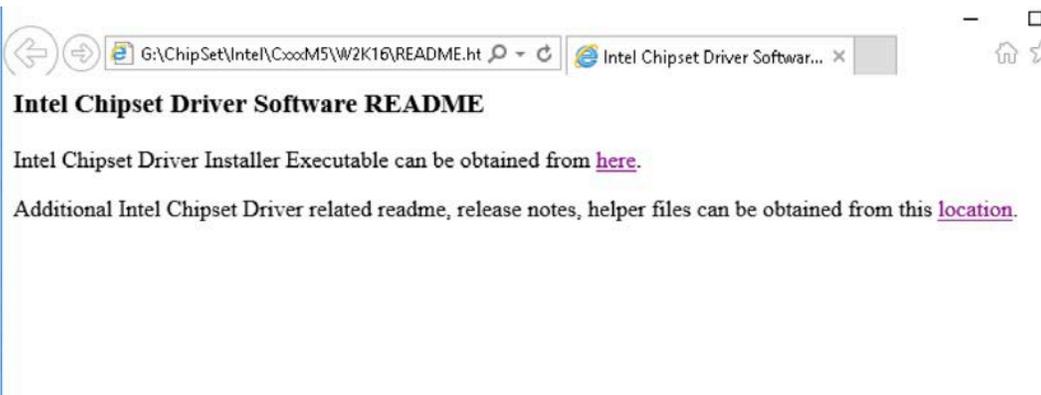
7. Click Next to install the Cisco VIC Ethernet Interface driver.



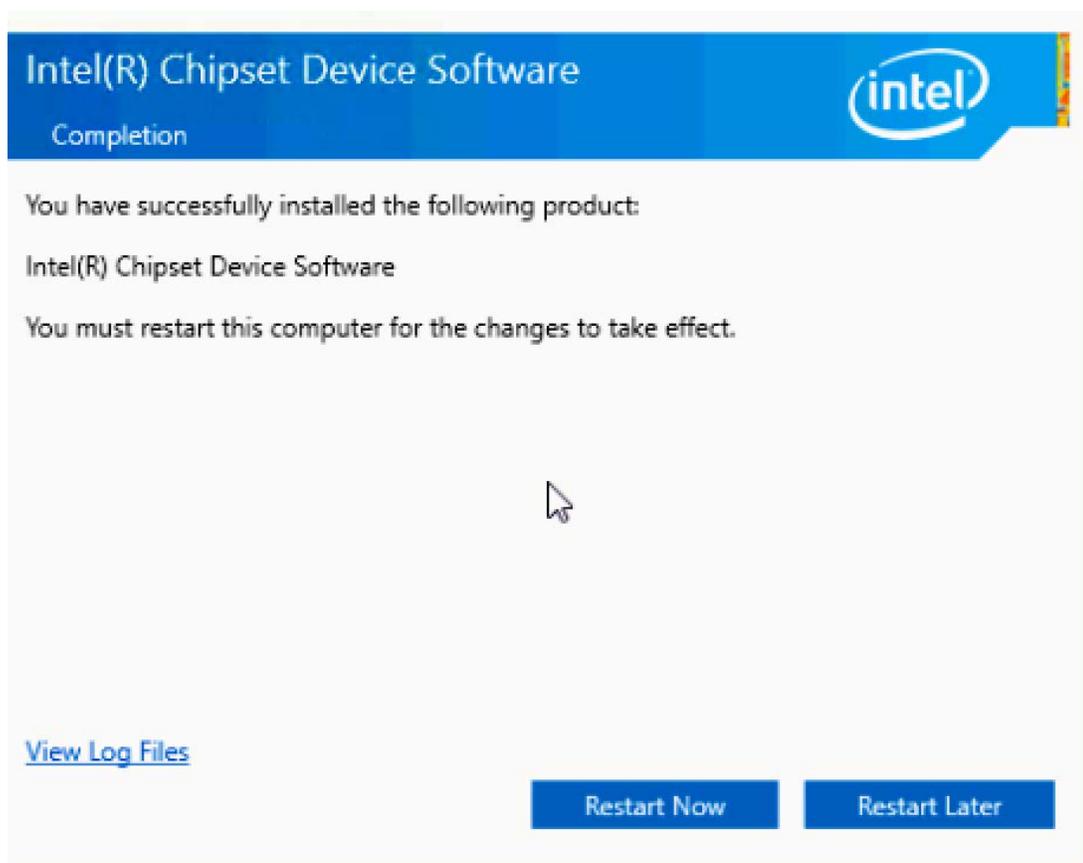
Update the chipset driver

To update the Intel chipset driver for Windows 2016, complete the following steps:

1. Select Update Driver for Intel Chipset.
2. Under the C240 driver ISO file mounted through the virtual media in the KVM console, browse to \ChipSet\Intel\CxxxM5\W2K16.



3. Click the chipset driver executable location and run SetupChipset.exe. When the file has been installed, restart the system.



Finish the configuration

Complete the configuration.

1. Assign an IP address, disable the firewall, and enable Microsoft Windows Remote Desktop for management of the server.
2. Create NICs.
 - If the C240 M5 is used as a standalone server, that is, if it is managed through the Cisco IMC, create a NIC team across the two NIC interfaces connected to a pair of redundant uplink switches. This approach provides high availability during failure of any one of the uplink switches.
 - If the C240 M5 server is managed by Cisco UCS Manager, you should create a single NIC, as discussed in the steps for creating a service profile.

Create the ReFS disk volume for the Veeam repository

ReFS volumes provide significantly faster synthetic full backup creation and transformation performance. They also reduce storage requirements and improve reliability. Even more important, they improve the availability of backup storage by significantly reducing its load, resulting in improved backup and restore performance and enabling customers to do much more with virtual labs.

To create a disk volume for the Veeam repository, complete the following steps:

1. Go to Server Manager > File and Storage Services.
2. Navigate to Volumes > Disks and select the volume with the name as Cisco UCSC-RAID16-2GB.
3. Create a new volume.

Server Manager

Server Manager ▸ File and Storage Services ▸ Volumes ▸ Disks

Servers
Volumes
Disks
Storage Pools

DISKS
All disks | 6 total

Filter

Number	Virtual Disk	Status	Capacity	Unallocated	Partition	Read Only	C. ...	Bus Type	Name
WIN-B5F02MAS28U (6)									
0		Online	894 GB	894 GB	Unknown			SATA	Micron_5100_MTFDDAV960TCB
1		Online	894 GB	894 GB	Unknown			SATA	Micron_5100_MTFDDAV960TCB
2		Online	372 GB	0.00 B	MBR			RAID	Cisco UCSC-RAID12G-2GB
3		Online	32.7 TB	32.7 TB	Unknown			RAID	Cisco UCSC-RAID12G-2GB
5		No Media	0.00 B	0.00 B	Unknown	✓		USB	Cisco CIMC-Mapped vHDD
4		No Media	0.00 B	0.00 B	Unknown	✓		USB	Cisco vKVM-Mapped vHDD

Last refreshed on 10/10/2018 9:21:10 PM

VOLUMES

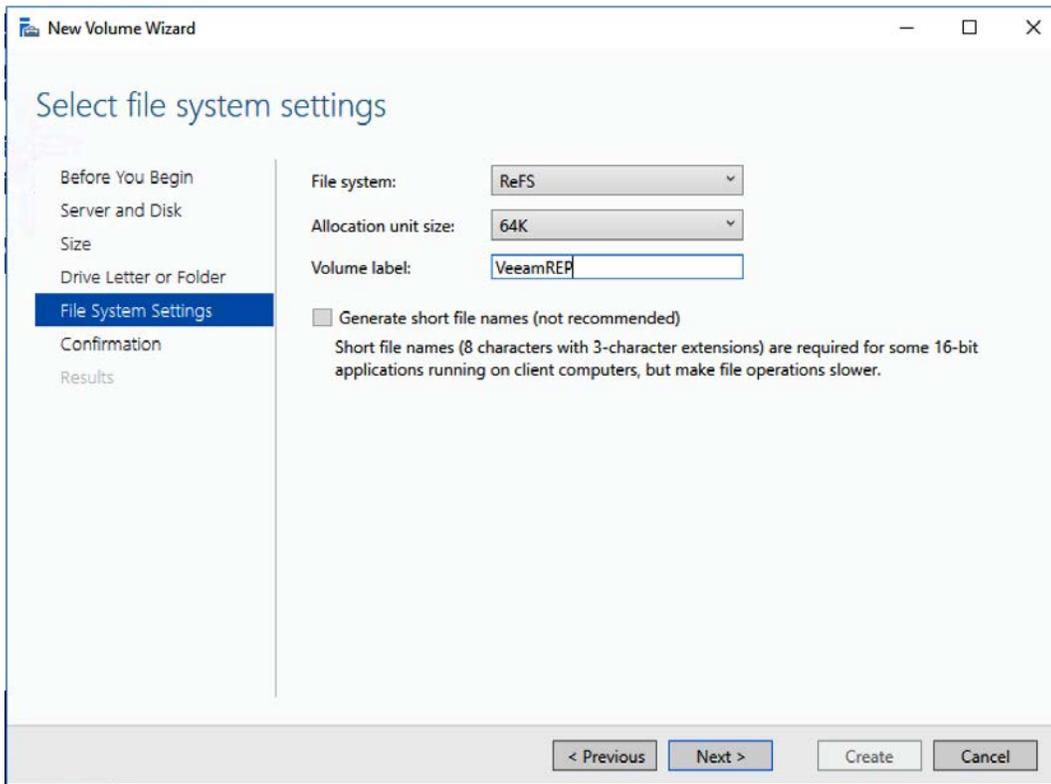
No volumes exist.

To create a volume, start the New Volume Wizard.

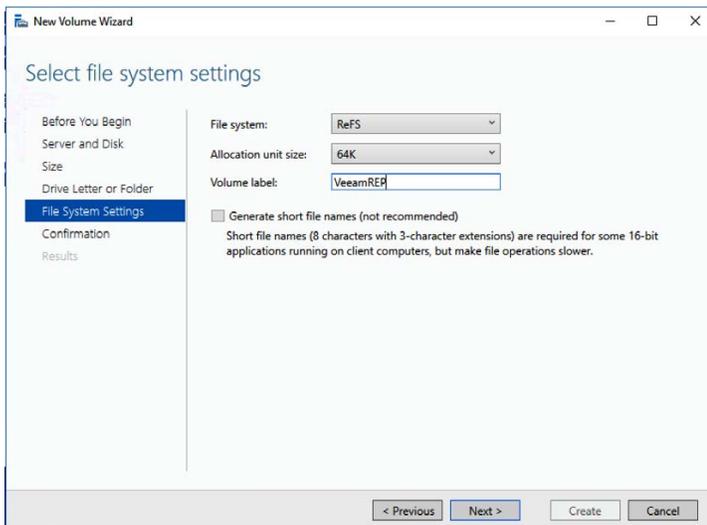
TASKS ▾

STORAGE POOL
Cisco UCSC-RA

4. Click Next until you reach the “Select File System settings” window.
 - a. Create a volume label.
 - b. Set the file system to ReFS.
 - c. Set an allocation unit size of 64 KB.
 - d. For the volume label, specify **VeeamRep**.
5. Click Next.



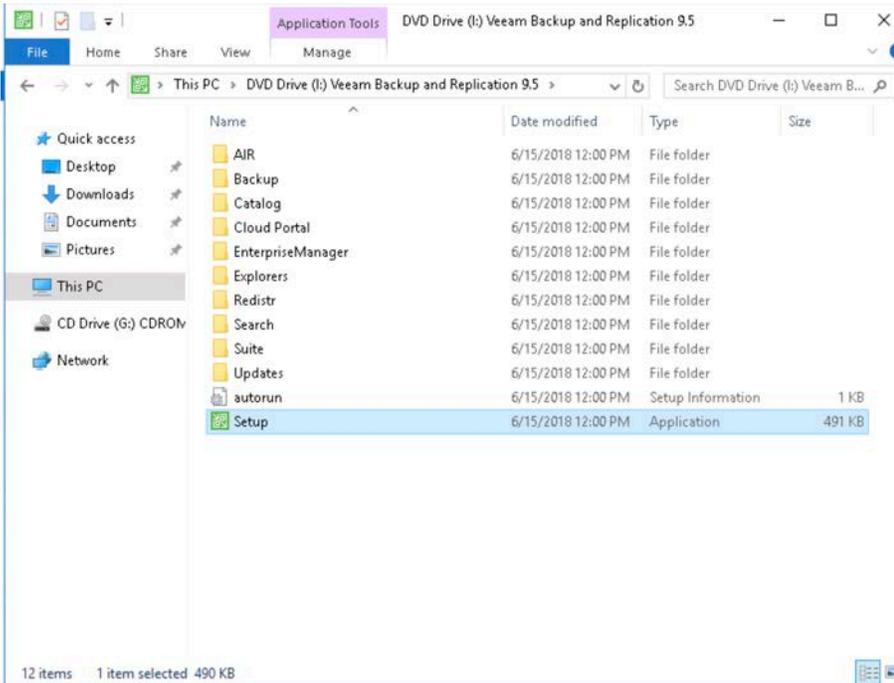
6. Confirm the file system settings and click Create.



Veeam Availability Suite installation

Download the Veeam software from <https://www.veeam.com/data-center-availability-suite-vcp-download.html>. Download a free 30-day trial license key or obtain a license key from Veeam.

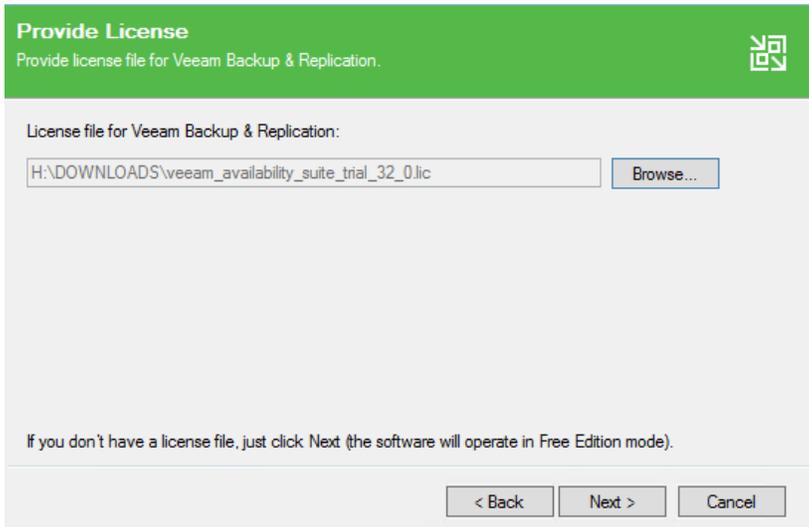
1. Start the Veeam installation with Setup.exe.



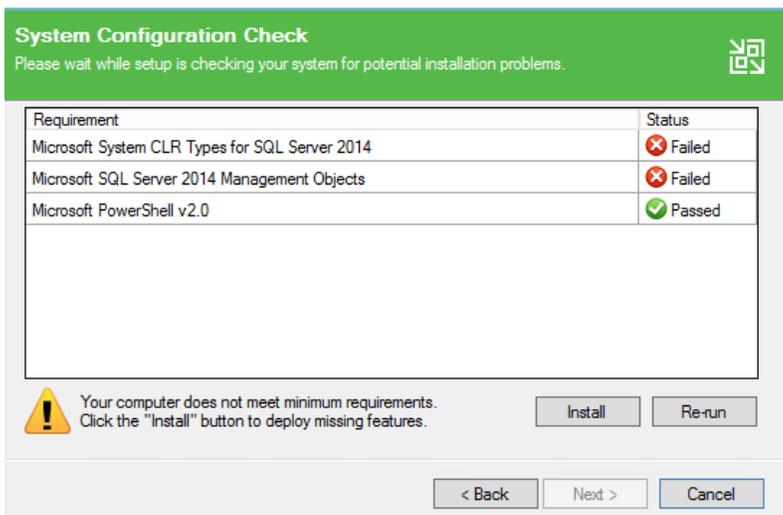
2. Click Install under Veeam Backup & Replication 9.5 Update 3.



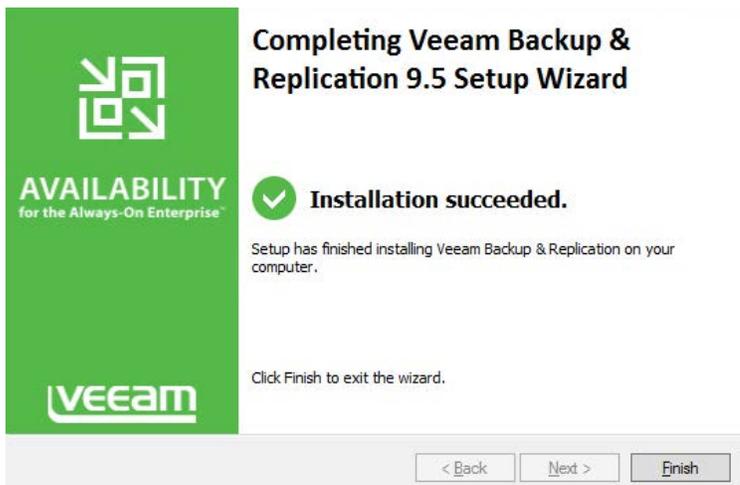
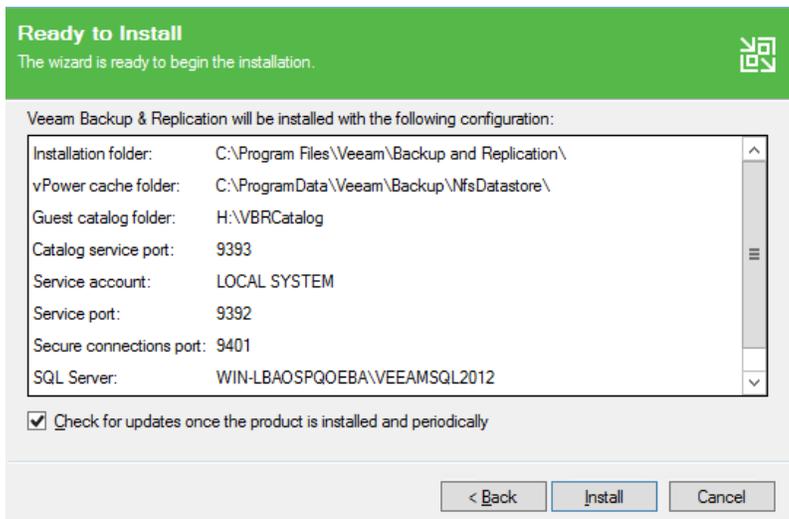
3. Enter the location of a valid Veeam license file.



4. During the system check, Veeam verifies the SQL Server Installation and prerequisite software components. Click Install.



5. Accept the default Installer locations and click Install.

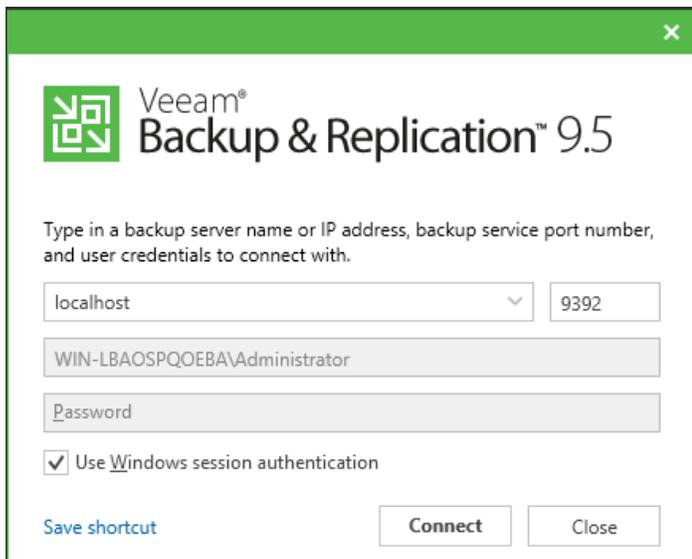


The core installation is complete.

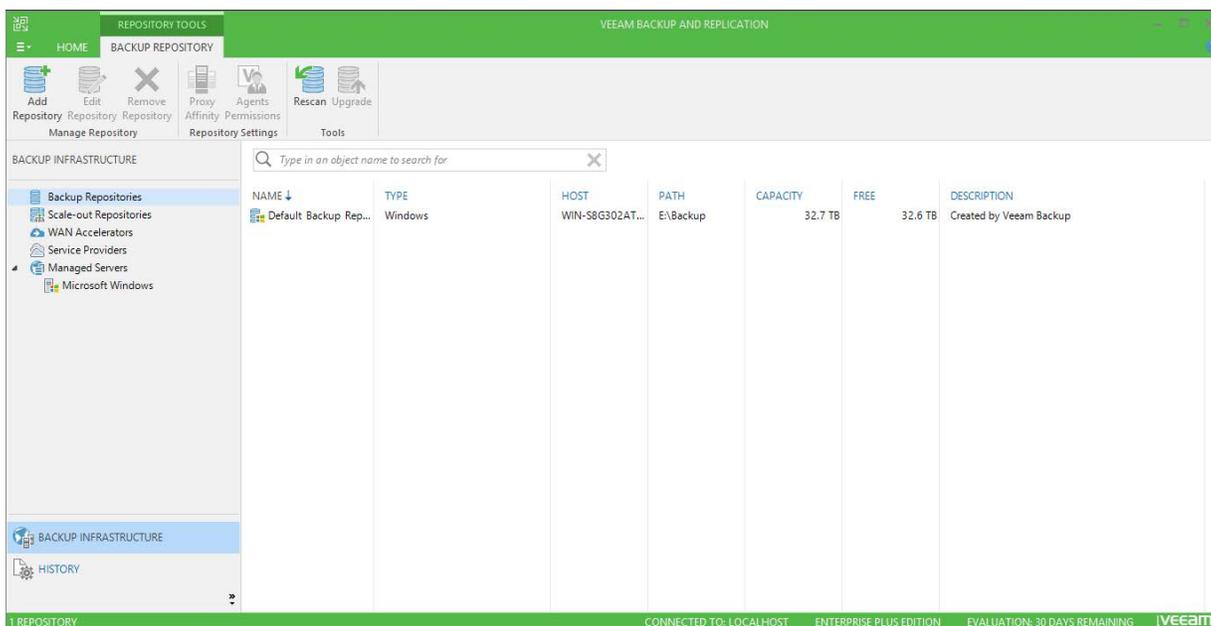
Veeam Availability Suite configuration

Now configure Veeam Availability Suite.

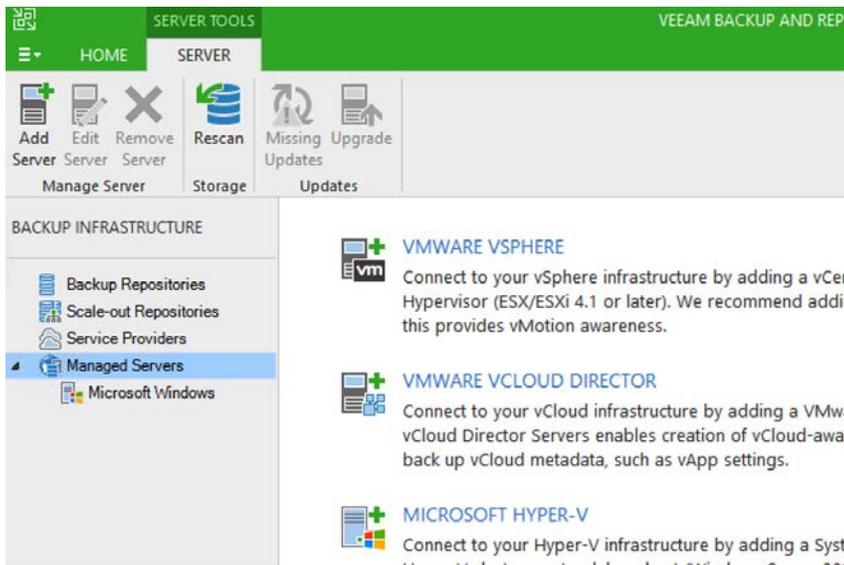
1. Open the Veeam Backup & Replication console.



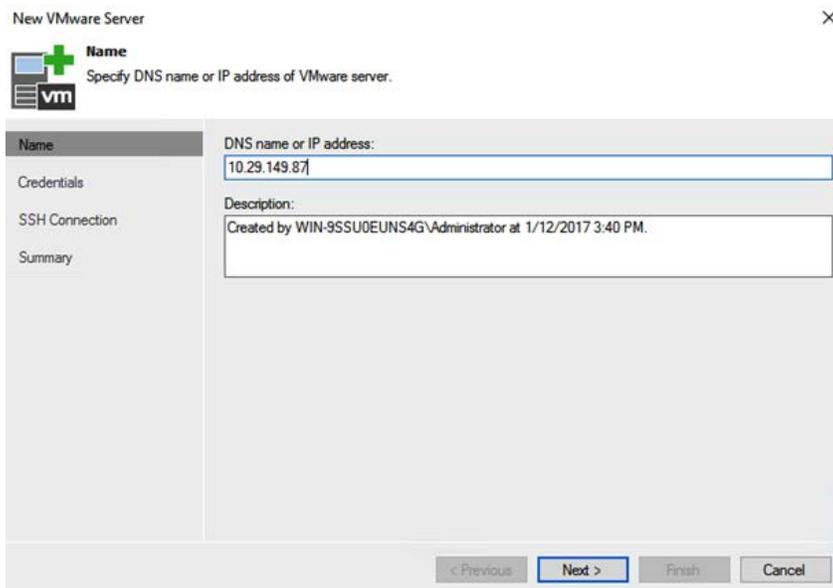
- By default, Veeam uses the drive with the most capacity as the Veeam repository. This is the VeeamRep repository created through the disk volume.



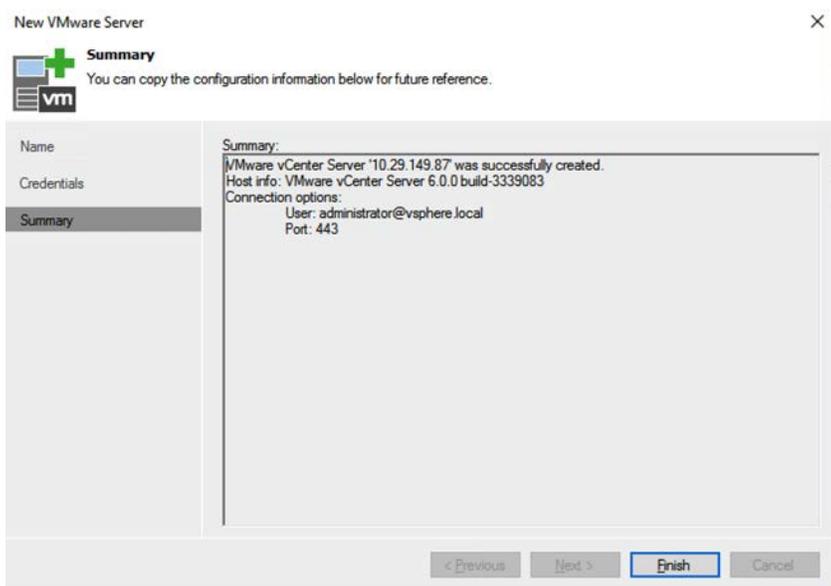
- Right-click Managed Server and choose Add Server.
- Select VMware VSphere and add the VMware vCenter URL. Then click Next.



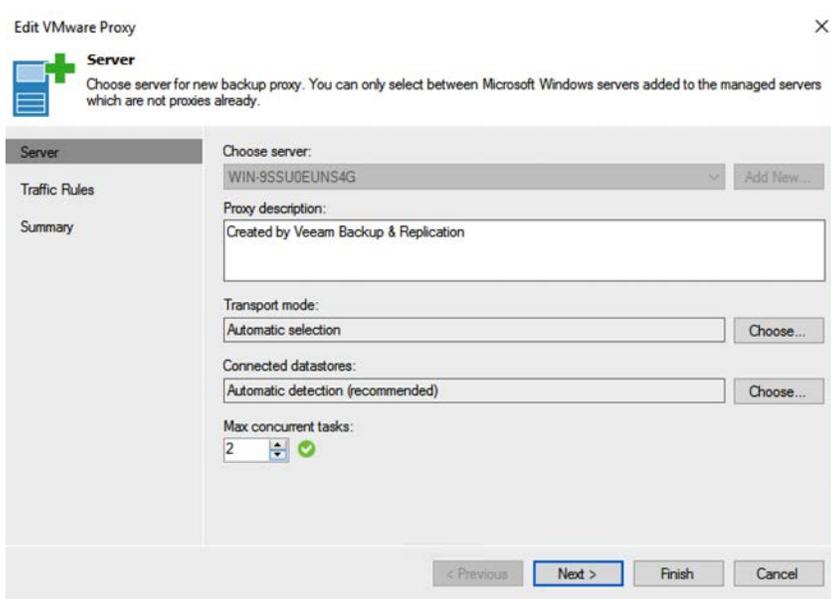
5. Enter the vCenter credentials and click Next.



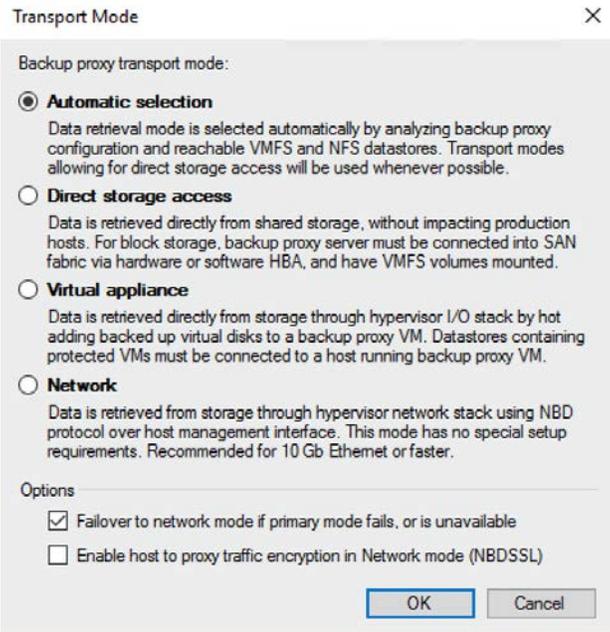
6. When the Veeam console has collected all the deployment details from vCenter, click Finish.



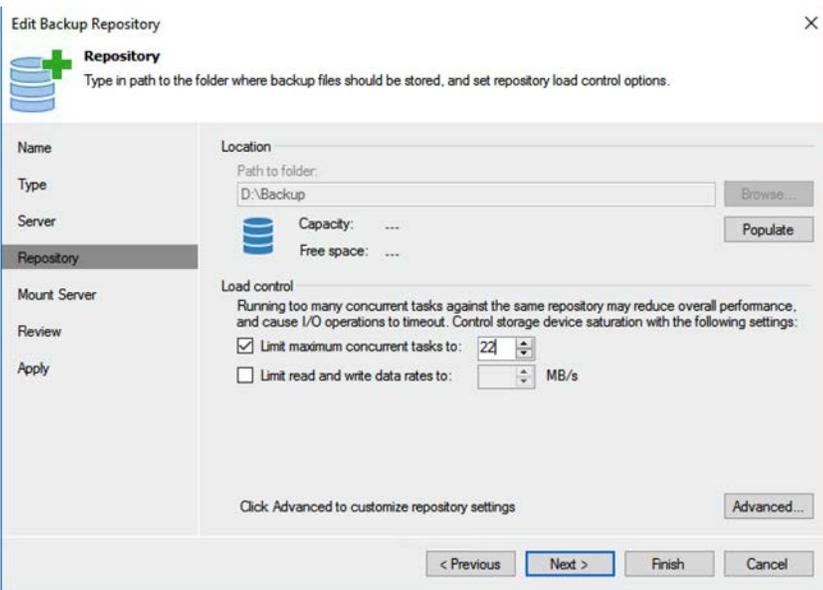
7. Click Backup Proxies in the right navigation window and choose VMware Backup Proxy. Edit the properties.



8. Edit Max Concurrent Tasks so that the value is equal to the number of physical cores minus 2. The present deployment uses a dual 12-core Intel processor, and therefore you can increase the maximum concurrent task value to 22.
9. Under Transport Mode, click Choose and make sure that “failover to network mode if primary mode fails, or is unavailable” is checked. This option is checked by default.



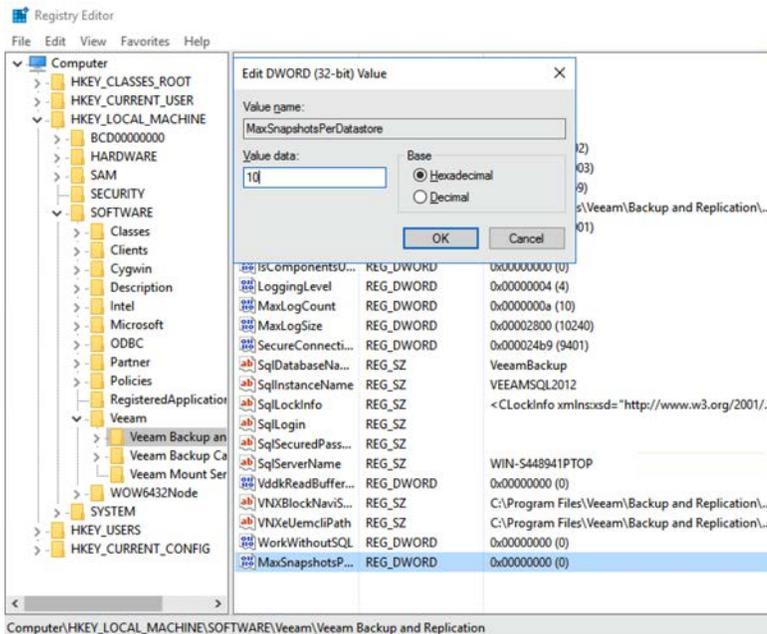
10. Click Finish.
11. Click Backup Repository in the right navigation window, select the default backup repository, and edit Properties.
12. Click Next until you reach the Repository window.
13. Increase the Limit Max Concurrent Task value to 22 (the number of physical cores minus 2).



14. Click Finish.
15. Add the **MaxSnapshotsPerDatastore** parameter in the registry.
16. The default number of snapshots per data store is 4. You can change the number of concurrent snapshots processed by Veeam in the VMware data store. In doing so, you should consider the intensity of the I/O workload on the vSphere cluster

during backup jobs. For instance, if the vSphere cluster is not performing heavy I/O-intensive transactions during Veeam backup jobs, then the MaxSnapshotsPerDatastore value can be increased.

- Using the registry key editor, go to HKEY_LOCAL_MACHINE\SOFTWARE\Veeam\Veeam Backup and Replication and add a REG_DWORD with the name **MaxSnapshotsPerDatastore**. Specify a value greater than 4.



- Restart the Windows 2016 Server to apply the registry settings.

Deployment of Veeam Availability Suite 9.5 on the Cisco UCS C240 M5 LFF rack server is now complete.

For more information

For additional information, see the following:

- Cisco UCS C240 M5 Rack Server:
<https://www.cisco.com/c/en/us/support/servers-unified-computing/ucs-c240-m5-rack-server/model.html>
- Cisco UCS 6000 Series Fabric Interconnects:
<http://www.cisco.com/c/en/us/products/servers-unified-computing/fabric-interconnects.html>
- Cisco UCS Manager:
<http://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-manager/index.html>
- Cisco white paper, Achieve Optimal Network Throughput on the Cisco UCS S3260 Storage Server:
http://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-s-series-storage-servers/Whitepaper_c11-738722.html
- Veeam Availability Suite v9: Installation and Deployment:
<https://www.veeam.com/videos/veeam-availability-suite-v9-installment-deployment-7554.html>

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