Cohesity Data Cloud on Cisco X-Series Modular Systems

Design and Deployment Guide

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In partnership with:

About the Cisco Validated Design Program

The Cisco Validated Design (CVD) program consists of systems and solutions designed, tested, and documented to facilitate faster, more reliable, and more predictable customer deployments. For more information, go to: http://www.cisco.com/go/designzone.

Executive Summary

Today's digitally transformed world is driven by the creativity, speed, and agility of applications and information. As organizations create, use, and manage increasingly higher volumes of data residing everywhere—across hybrid clouds and multiclouds—keeping it safe from ransomware attacks and making it available and productive to the business have become complex and costly. Moreover, today, 46 percent of organizations rely on backup and recovery infrastructure designed in, or before, 2010. Complexities for data management increase because legacy, point solutions no longer work, driving up infrastructure costs and introducing more data silos that expand the attack surface for ransomware. Organizations are grappling with rising security and compliance risks from data residing everywhere and the preparedness to recover rapidly from a data breach.

Cohesity on Cisco UCS X-Series Modular System with Cisco Intersight is a modern, future-ready backup and recovery solution. Moving beyond the limits of traditional platforms, Cisco UCS X-Series Modular Systems provides functionalities of both blade and rack servers by offering compute density, storage capacity, and expandability in a single system, embracing a wide range of workloads in your data center making it a great way to unleash the power of Cohesity DataProtect. Cisco UCS X-Series Modular Systems equipped with all flash storage provides exceptional backup and recovery performance critical during any outages and data-loss incidents such malicious ransomware attacks. This combined with Cohesity DataProtect's immutable backup snapshots, WORM, data encryption, multi-factor authentication, and granular role-based access controls provides a flexible, hyperscale, software-defined backup and recovery solution that simplifies and modernizes data protection to thwart data loss.

This Cisco Validated Design and Deployment Guide provides prescriptive guidance for the design, setup, configuration, and ongoing use of the Cohesity DataProtect on the Cisco UCS X-Series Modular System. This unique integrated solution provides industry-leading data protection and predictable recovery with modern cloud-managed infrastructure that frees you from yesterday's constraints by future-proofing your data. Additionally, this solution is delivered as Infrastructure as Code (IaC) to eliminate error-prone manual tasks, allowing quicker and more consistent solution deployments.

For more information on joint Cisco and Cohesity solutions, see https://www.cohesity.com/products/cisco/.

Solution Overview

This chapter contains the following:

- Audience
- Purpose of this Document
- Solution Summary

As cyber threats continue to rise, the protection of data sets and workloads is fundamental for any workload, whether it's running on a core data center, edge, or remote site, or in the cloud. However, one of the key challenges for IT and backup administrators is the ability to recover mission-critical applications within the service-level agreements (SLAs), especially during a ransomware attack. Customers are seeking an optimized All Flash data protection solution that not only provides fast recoveries but is also secure, easy to manage and deploy, scalable, efficient, and, most importantly, future ready.

The Cohesity Data Cloud on Cisco UCS X-Series Modular System helps you to overcome these challenges by providing an All Flash data protection solution. This integrated solution comprehensive data security and management capabilities to keep your data safe and your business resilient, and to let you do more with your data, thus reducing your total cost of ownership (TCO). Equally importantly, it delivers incredibly fast performance for comprehensive data management services such as backup and recovery, disaster recovery, file and object services, dev/test, and analytics.

Audience

The intended audience for this document includes, but is not limited to, sales engineers, field consultants, professional services, IT managers, IT engineers, partners, and customers who are interested in learning about and deploying an All Flash, secure, and scalable data protection solution for backup and recovery of workloads.

Purpose of this Document

This document describes the design, configuration, deployment steps for the Cohesity Data Cloud Cisco X-Series modular platform managed through Cisco Intersight.

Solution Summary

This solution provides a reference architecture and validated deployment procedure for the Cohesity Data Cloud on Cisco UCS X-Series Modular System managed through Cisco Intersight. At a high level, the solution delivers a simple, flexible, and scalable infrastructure approach, enabling fast backup and recoveries of enterprise applications and workloads provisioned either on a converged or hyper-converged platforms. The solution also allows for consistent operations and management across Cisco infrastructure and Cohesity software environment.

The key elements of this solution are as follows:

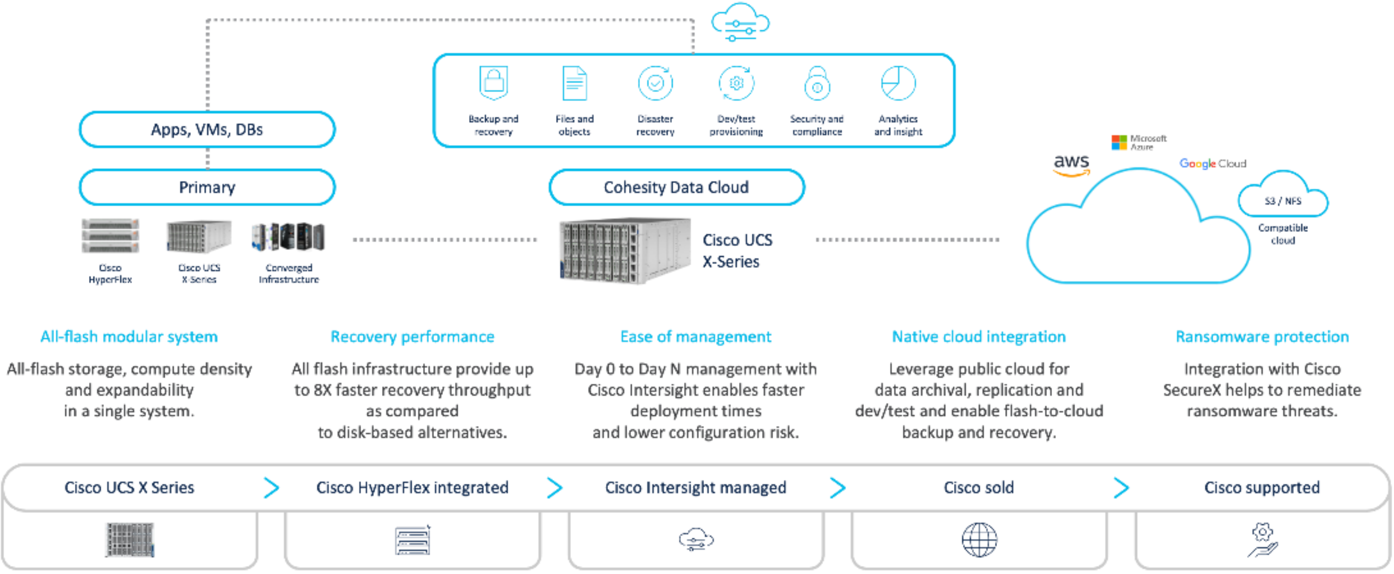
- Cisco Intersight—is a cloud operations platform that delivers intelligent visualization, optimization, and orchestration for applications and infrastructure across public cloud and on-premises environments. Cisco Intersight provides an essential control point for you to get more value from hybrid IT investments by simplifying operations across on-prem and your public clouds, continuously optimizing their multi cloud environments and accelerating service delivery to address business needs.
- Cisco UCS X-Series Modular System with Cisco Intersight—is a modular system managed from the cloud. It is designed to be shaped to meet the needs of modern applications and improve operational efficiency, agility, and scale through an adaptable, future-ready, modular design. The Cisco UCS X-Series Modular

System provides functionalities of both blade and rack servers by offering compute density, storage capacity, and expandability in a single system.

- Cisco UCS X210c M6 Node—is the first computing device to integrate into the Cisco UCS X-Series Modular System. Up to eight compute nodes can reside in the 7-Rack-Unit (7RU) Cisco UCS X9508 Chassis, offering one of the highest densities of compute, I/O, and storage per rack unit in the industry. This solution uses all-NVMe X-Series nodes (X210C) equipped with two third generation (3rd Gen) Intel Xeon Scalable processors and 91.8 TB of all-NVMe storage per node, providing both computing and storage resources with exceptional backup and recovery performance.
- Cohesity Data Cloud—is a unified platform for securing, managing, and extracting value from enterprise data. This software-defined platform spans across core, cloud, and edge, can be managed from a single GUI, and enables independent apps to run in the same environment. It is the only solution built on a hyperconverged, scale-out design that converges backup, files and objects, dev/test, and analytics, and uniquely allows applications to run on the same platform to extract insights from data. Designed with Google-like principles, it delivers true global deduplication and impressive storage efficiency that spans edge to core to the public cloud.
- Cohesity DataProtect—is a high-performance, secure backup and recovery solution. It converges multiple-point products into a single software that can be deployed on-premises or consumed as a service (BaaS). Designed to safeguard your data against sophisticated cyber threats, it offers the most comprehensive policy-based protection for your cloud-native, SaaS, and traditional workloads.

Figure 1 illustrates the key differentiators for the Cohesity Data Cloud on Cisco UCS X-Series Modular System best in class infrastructure, security, and data protection services from Cisco and Cohesity.

Figure 1. Solution Overview



All-flash modular system
All-flash storage, compute density and expandability in a single system.

Recovery performance
All flash infrastructure provide up to 8X faster recovery throughput as compared to disk-based alternatives.

Ease of management
Day 0 to Day N management with Cisco Intersight enables faster deployment times and lower configuration risk.

Native cloud integration
Leverage public cloud for data archival, replication and dev/test and enable flash-to-cloud backup and recovery.

Ransomware protection
Integration with Cisco SecureX helps to remediate ransomware threats.

Technology Overview

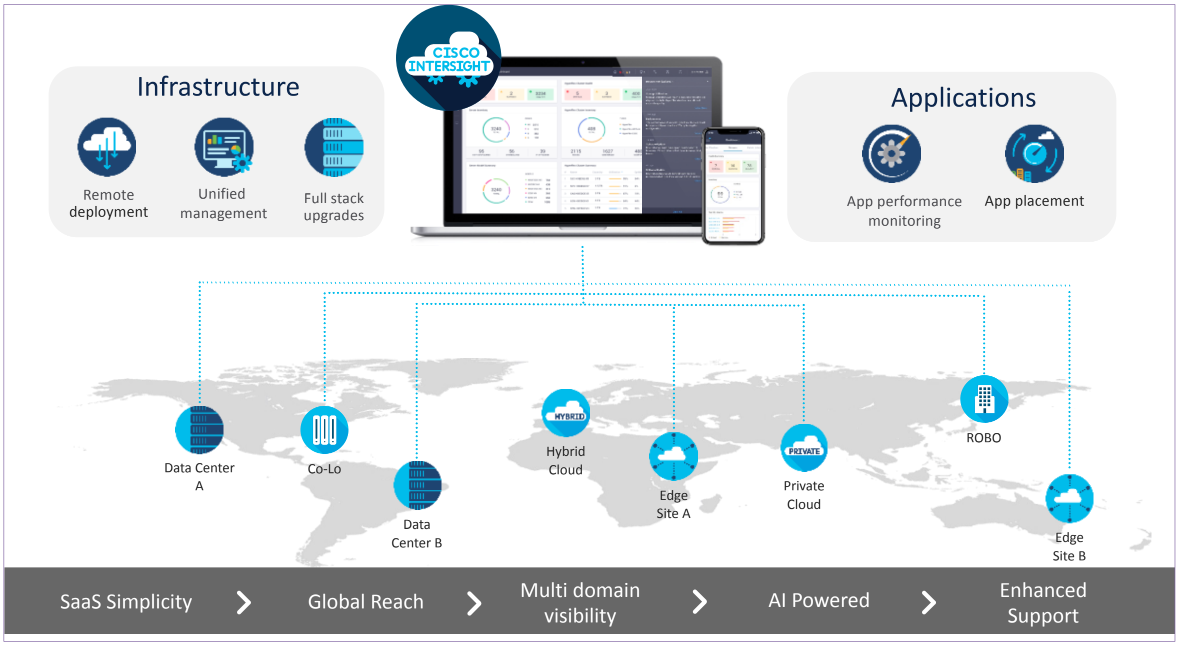
This chapter contains the following:

- Cisco Intersight Platform
- Cisco Unified Computing System X-Series
- Cisco UCSX 9508 Chassis
- SecureX and Cohesity Data Cloud Integration
- Cohesity Data Cloud
- Red Hat Ansible

These components deployed in this solution are configured using best practices from both Cisco and Cohesity to deliver an enterprise-class data protection solution deployed on Cisco UCS X-Series Modular System. The upcoming sections provide a summary of the key features and capabilities available in these components.

Cisco Intersight Platform

As applications and data become more distributed from core data center and edge locations to public clouds, a centralized management platform is essential. IT agility will be a struggle without a consolidated view of the infrastructure resources and centralized operations. Cisco Intersight provides a cloud-hosted, management and analytics platform for all Cisco HyperFlex, Cisco UCS, and other supported third-party infrastructure deployed across the globe. It provides an efficient way of deploying, managing, and upgrading infrastructure in the data center, ROBO, edge, and co-location environments.



Cisco Intersight provides:

- No Impact Transition: Embedded connector (Cisco HyperFlex, Cisco UCS) will allow you to start enjoying the benefits without a major upgrade.
- SaaS/Subscription Model: SaaS model provides for centralized, cloud-scale management and operations across hundreds of sites around the globe without the administrative overhead of managing the platform.

- Enhanced Support Experience: A hosted platform allows Cisco to address issues platform-wide with the experience extending into TAC supported platforms.
- Unified Management: Single pane of glass, consistent operations model, and experience for managing all systems and solutions.
- Programmability: End to end programmability with native API, SDK's and popular DevOps toolsets will enable you to deploy and manage the infrastructure quickly and easily.
- Single point of automation: Automation using Ansible, Terraform and other tools can be done through Intersight for all systems it manages.
- Recommendation Engine: Our approach of visibility, insight and action powered by machine intelligence and analytics provide real-time recommendations with agility and scale. Embedded recommendation platform with insights sourced from across Cisco install base and tailored to each customer.

In this solution, Cisco Intersight provides a single global SaaS platform allowing management of either Cisco X-Series or Cisco C-Series Rack servers running the Cohesity Data Cloud deployed across multiple data centers, edge, or remote sites. The life cycle management capabilities that Cisco Intersight offers allows automated Day 0 deployment, continuous monitoring of infrastructure , proactive RMAs, firmware upgrades and easier expansion of Cohesity Clusters.

For more information, go to the Cisco Intersight product page on cisco.com.

Cisco Intersight Virtual Appliance and Private Virtual Appliance

In addition to the SaaS deployment model running on Intersight.com, you can purchase on-premises options separately. The Cisco Intersight virtual appliance and Cisco Intersight private virtual appliance are available for organizations that have additional data locality or security requirements for managing systems. The Cisco Intersight virtual appliance delivers the management features of the Cisco Intersight platform in an easy-to-deploy VMware Open Virtualization Appliance (OVA) or Microsoft Hyper-V Server virtual machine that allows you to control the system details that leave your premises. The Cisco Intersight private virtual appliance is provided in a form factor designed specifically for those who operate in disconnected (air gap) environments. The private virtual appliance requires no connection to public networks or to Cisco network.

Cisco Intersight Assist

Cisco Intersight Assist helps you add endpoint devices to the Cisco Intersight platform. A datacenter could have multiple devices that do not connect directly with the platform. Any device that the Cisco Intersight platform supports but does not connect with directly must have a connection mechanism, and Cisco Intersight Assist provides it. In FlashStack, VMware vCenter and Pure Storage FlashArray connect to the Intersight platform with the help of the Cisco Intersight Assist virtual machine.

Cisco Intersight Assist is available within the Cisco Intersight virtual appliance, which is distributed as a deployable virtual machine contained within an OVA file format. Later sections in this paper have more details about the Cisco Intersight Assist virtual-machine deployment configuration.

Licensing Requirements

The Cisco Intersight platform uses a subscription-based license with multiple tiers. You can purchase a subscription duration of 1, 3, or 5 years and choose the required Cisco UCS server volume tier for the selected subscription duration. Each Cisco endpoint automatically includes a Cisco Intersight Base license at no additional cost when you access the Cisco Intersight portal and claim a device. You can purchase any of the following higher-tier Cisco Intersight licenses using the Cisco ordering tool:

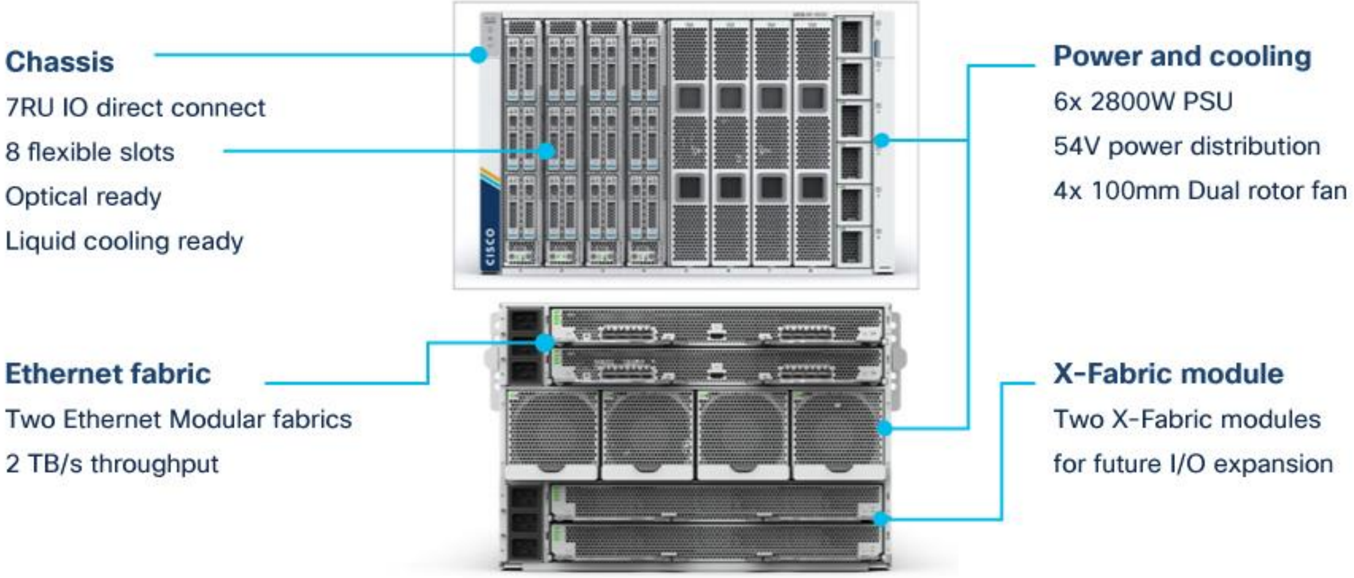
- Cisco Intersight Essentials: Essentials includes all the functions of the Base license plus additional features, including Cisco UCS Central software and Cisco Integrated Management Controller (IMC) supervisor entitlement, policy-based configuration with server profiles, firmware management, and evaluation of compatibility with the Cisco Hardware Compatibility List (HCL).
- Cisco Intersight Advantage: Advantage offers all the features and functions of the Base and Essentials tiers. It also includes storage widgets and cross-domain inventory correlation across compute, storage, and virtual environments (VMware ESXi). OS installation for supported Cisco UCS platforms is also included.

Servers in the Cisco Intersight managed mode require at least the Essentials license. For more information about the features provided in the various licensing tiers, see: https://www.intersight.com/help/saas/getting_started/licensing_requirements

Cisco Unified Computing System X-Series

The Cisco UCS X-Series Modular System is designed to take the current generation of the Cisco UCS platform to the next level with its design that will support future innovations and management in the cloud (Figure 1). Decoupling and moving platform management to the cloud allows the Cisco UCS platform to respond to your feature and scalability requirements much faster and more efficiently. Cisco UCS X-Series state-of-the-art hardware simplifies the datacenter design by providing flexible server options. A single server type that supports a broader range of workloads results in fewer different datacenter products to manage and maintain. The Cisco Intersight cloud management platform manages the Cisco UCS X-Series as well as integrating with third-party devices. These devices include VMware vCenter and Pure Storage to provide visibility, optimization, and orchestration from a single platform, thereby enhancing agility and deployment consistency.

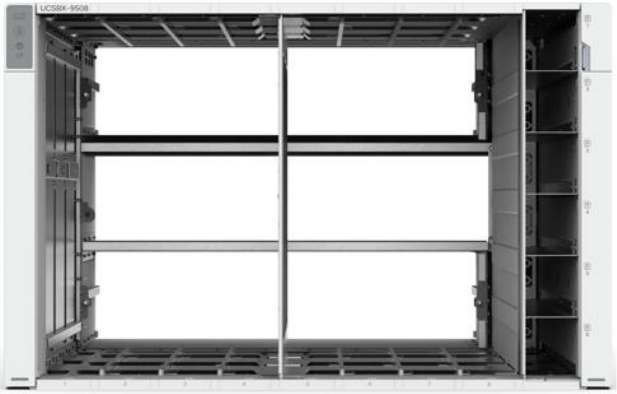
Figure 2. Cisco UCSX 9508 Chassis



Cisco UCSX 9508 Chassis

The Cisco UCS X-Series chassis is engineered to be adaptable and flexible. As shown in Figure 3, the only midplane of the UCSX-9508 chassis is just a power-distribution midplane. This innovative design provides fewer obstructions for better airflow. For I/O connectivity, vertically oriented compute nodes intersect with horizontally oriented fabric modules, allowing the chassis to support future fabric innovations. Superior packaging of the Cisco UCSX 9508 chassis enables larger compute nodes, thereby providing more space for actual compute components such as memory, GPU, drives, and accelerators. Improved airflow through the chassis enables support for higher-power components, and more space allows for future thermal solutions (such as liquid cooling) without limitations.

Figure 3. Cisco UCS X9508 Chassis – only power distribution midplane



The Cisco UCSX 9508 7-rack-unit (7RU) chassis has 8 flexible slots. These slots can house a combination of compute nodes and a pool of future I/O resources that may include GPU accelerators, disk storage, and nonvolatile memory (NVM). At the top rear of the chassis are two Intelligent Fabric Modules (IFM) that connect the chassis to upstream Cisco UCS 6400 Series Fabric Interconnects. At the bottom rear of the chassis are slots ready to house future X-Fabric modules that can flexibly connect the compute nodes with I/O devices. Six 2800W power supply units (PSUs) provide 54V DC power to the chassis with N, N+1, and N+N redundancy. A higher voltage allows efficient power delivery with less copper and reduced power loss. Efficient, 100-mm, dual counter-rotating fans deliver industry-leading airflow and power efficiency, and optimized thermal algorithms enable different cooling modes to best support your environment.

Cisco UCSX 9108-25G Intelligent Fabric Modules

For the Cisco UCSX 9508 chassis, a pair of Cisco UCS 9108-25G IFMs provide network connectivity. Like the fabric extenders used in the Cisco UCS 5108 Blade Server chassis, these modules carry all network traffic to a pair of Cisco UCS 6400 Series fabric interconnects. IFM also hosts a chassis management controller (CMC). High-speed PCIe-based fabric topology provides extreme flexibility compared to a combination of serial-attached SCSI (SAS), Serial Advanced Technology Attachment (SATA), or Fibre Channel. In contrast to systems with fixed networking components, the design of the Cisco UCSX 9508 enables easy upgrades to new networking technologies as they emerge, making it straightforward to accommodate new network speeds or technologies in the future.

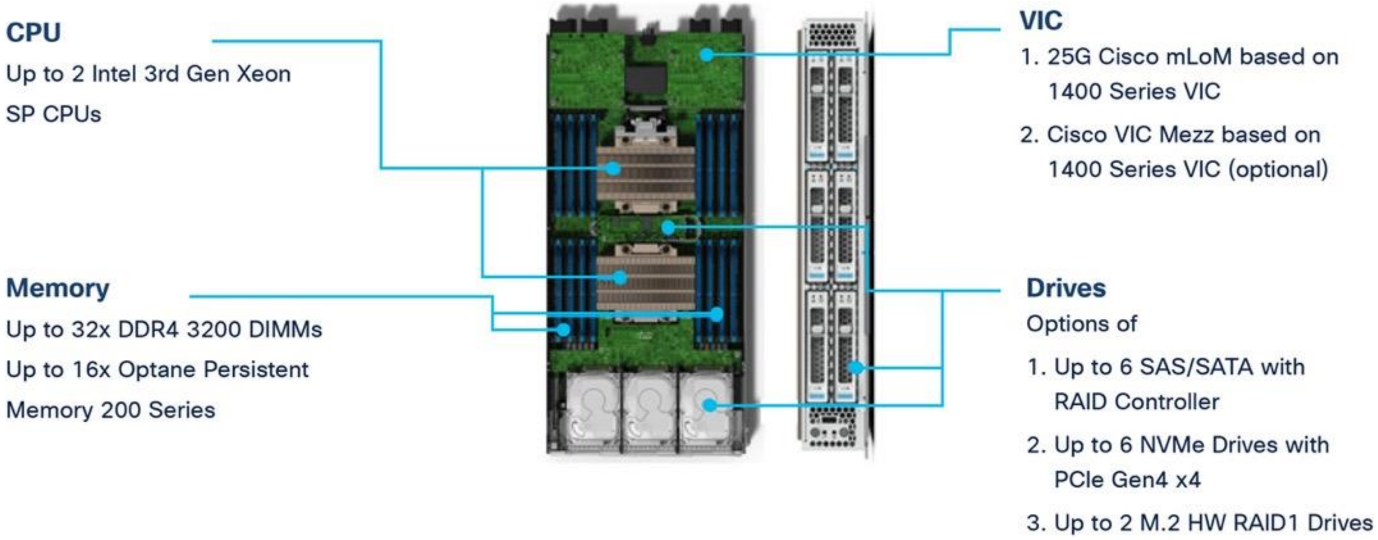
Each IFM supports eight 25-Gb uplink ports for connecting the Cisco UCSX 9508 chassis to the fabric interconnects and thirty-two 25-Gb server ports for the 8 compute nodes. The IFM server ports can provide up to 200 Gbps of unified fabric connectivity per compute node across the two IFMs. The uplink ports connect the chassis to a Cisco UCS fabric interconnect to provide up to 400-Gbps connectivity across the two IFMs. The unified fabric carries management, virtual-machine, and Fibre Channel over Ethernet (FCoE) traffic to the fabric interconnects, where management traffic is routed to the Cisco Intersight cloud operations platform. FCoE traffic is forwarded to the native Fibre Channel interfaces through unified ports on the fabric interconnect (to Cisco MDS switches), and virtual-machine Ethernet traffic is forwarded upstream to the data center network (by Cisco Nexus switches).

Figure 4. Cisco UCS 9108-25G IFM

Cisco UCS X210c M6 Server

The Cisco UCS X9508 chassis is designed to host up to 8 Cisco UCS X210c M6 servers. Figure 5 shows the hardware details of the Cisco UCS X210c M6 compute node.

Figure 5. Cisco UCS X210c M6 Compute Node


CPU
Up to 2 Intel 3rd Gen Xeon SP CPUs
Memory
Up to 32x DDR4 3200 DIMMs
Up to 16x Optane Persistent Memory 200 Series
VIC
1. 25G Cisco mLoM based on 1400 Series VIC
2. Cisco VIC Mezz based on 1400 Series VIC (optional)
Drives
Options of
1. Up to 6 SAS/SATA with RAID Controller
2. Up to 6 NVMe Drives with PCIe Gen4 x4
3. Up to 2 M.2 HW RAID1 Drives

The feature of the Cisco UCS X210c M6 are:

- CPU: The X210c nodes supports, up to two third-generation Intel Xeon scalable processors with up to 40 cores per processor and a 1.5-MB Level 3 cache per core.
- Memory: Supports up to thirty-two 256-GB DDR4-3200 (DIMMs) for a maximum of 8 TB of main memory. You can configure the compute node for up to sixteen 512-GB Intel Optane persistent memory DIMMs for a maximum of 12 TB of memory.
- Disk storage: You can configure up to 6 SAS or SATA drives with an internal (RAID) controller or up to 6 nonvolatile memory express (NVMe) drives. You can add 2 M.2 memory cards to the compute node with RAID 1 mirroring.
- Virtual interface card: You can install up to 2 virtual interface cards, including a Cisco UCS Virtual Interface Card (VIC) modular LOM card (mLOM) 14425, and a mezzanine Cisco VIC 14825 in a compute node.
- Security: The server supports an optional trusted platform module (TPM). Additional security features include a secure a boot field-programmable gate array (FPGA) and ACT2 anti-counterfeit provisions.

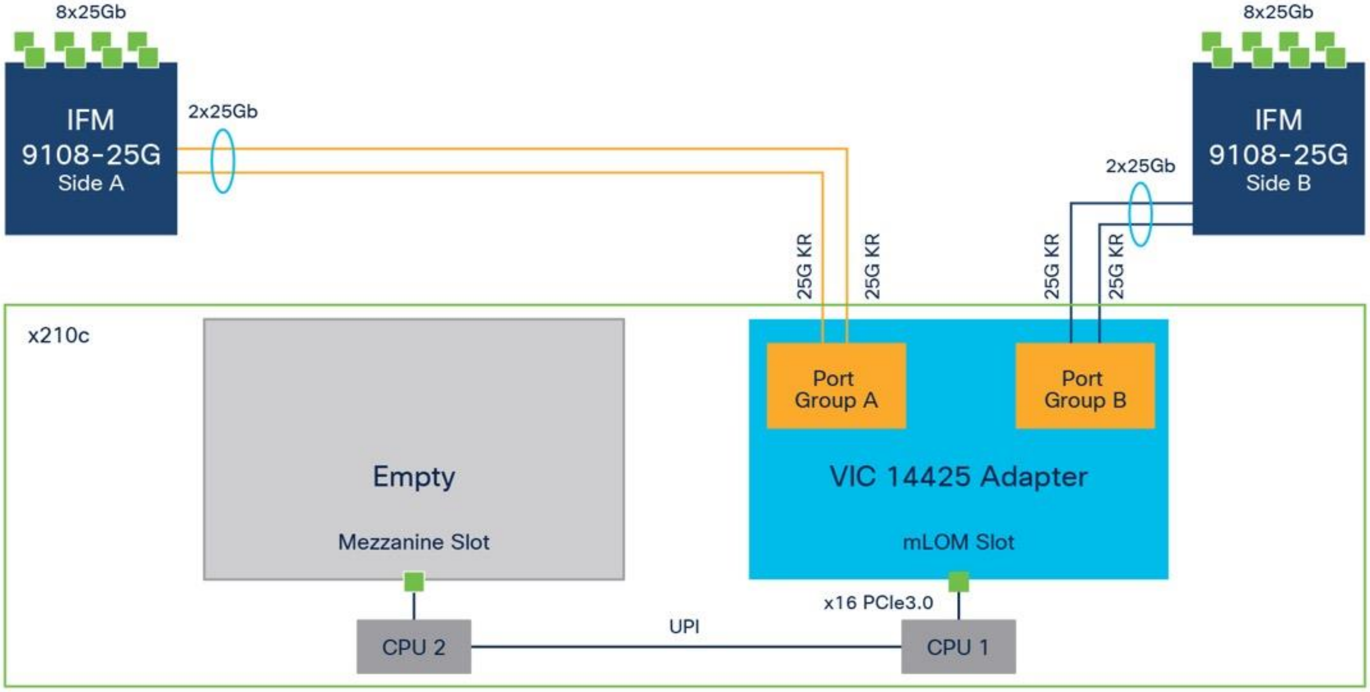
Cisco UCS VICs

Cisco UCS X210c M6 compute nodes support the following two Cisco fourth-generation VIC cards:

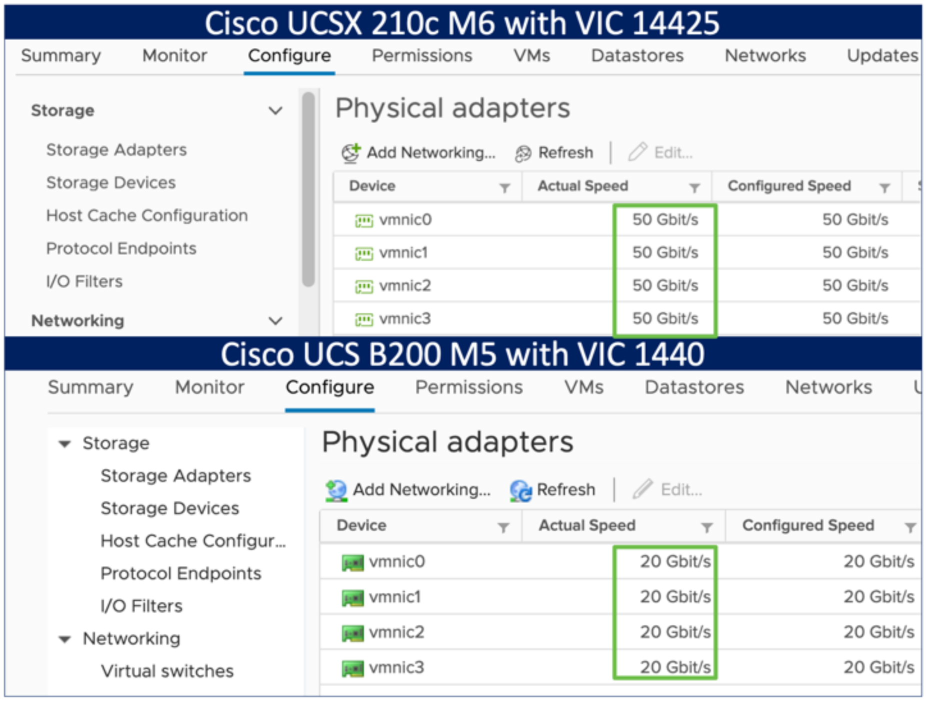
Cisco VIC 14425

Cisco VIC 14425 fits the mLOM slot in the Cisco X210c compute node and enables up to 50 Gbps of unified fabric connectivity to each of the chassis IFMs for a total of 100 Gbps of connectivity per server (Figure 6). Cisco VIC 14425 connectivity to the IFM and up to the fabric interconnects is delivered through four 25-Gbps connections that are configured automatically as two 50-Gbps port channels. Cisco VIC 14425 supports 256 virtual interfaces (both Fibre Channel and Ethernet) along with the latest networking innovations such as NVMe over Fabric over Remote Direct Memory Access (RDMA), RDMA over Converged Infrastructure (RoCEv2), Virtual Extensible VLAN gateway/Network Virtualization using Generic Routing Encapsulation (VxLAN/NVGRE) offload, and so on.

Figure 6. Single Cisco UCS VIC 14425 in Cisco UCS X210c M6



The connections between the fourth-generation Cisco VIC (Cisco UCS VIC 1440) in the Cisco UCS B200 blade servers and the I/O modules in the Cisco UCS VIC 5108 chassis comprise multiple 10-Gbps KR lanes. The same connections between Cisco UCS VIC 14425 and IFM in the Cisco UCS X-Series comprise multiple 25-Gbps KR lanes, resulting in 2.5 times better connectivity in Cisco UCS X210c M6 compute nodes. The following screenshot shows the network interface speed comparison for VMware ESXi installed on the Cisco UCS B200 M5 with a Cisco UCS VIC 1440 and Cisco UCSX 210c M6 with a Cisco UCS VIC 14425.



Cisco UCSX 210c M6 with VIC 14425

Physical adapters

Device	Actual Speed	Configured Speed
vmnic0	50 Gbit/s	50 Gbit/s
vmnic1	50 Gbit/s	50 Gbit/s
vmnic2	50 Gbit/s	50 Gbit/s
vmnic3	50 Gbit/s	50 Gbit/s

Cisco UCS B200 M5 with VIC 1440

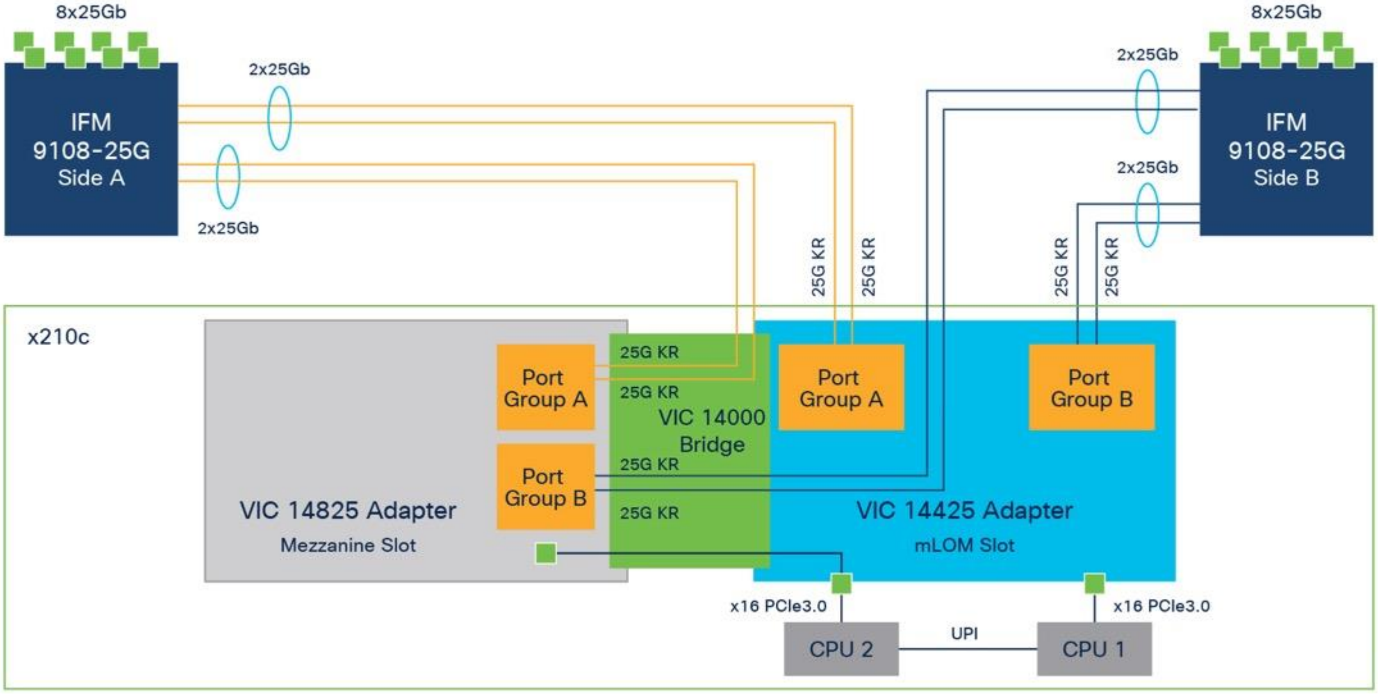
Physical adapters

Device	Actual Speed	Configured Speed
vmnic0	20 Gbit/s	20 Gbit/s
vmnic1	20 Gbit/s	20 Gbit/s
vmnic2	20 Gbit/s	20 Gbit/s
vmnic3	20 Gbit/s	20 Gbit/s

Cisco UCS VIC 14825

The optional Cisco UCS VIC 14825 fits the mezzanine slot on the server. A bridge card (part number UCSX-V4-BRIDGE) extends the two 50 Gbps of network connections of this VIC up to the mLOM slot and out through the IFM connectors of the mLOM, bringing the total bandwidth to 100 Gbps per fabric for a total bandwidth of 200 Gbps per server (Figure 7).

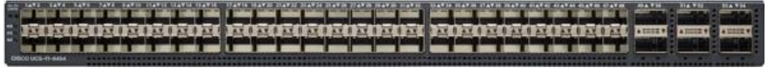
Figure 7. Cisco UCS VIC 14425 and 14825 in Cisco UCS X210c M6



Cisco UCS 6400 Fabric Interconnects

The Cisco UCS fabric interconnects provide a single point for connectivity and management for the entire Cisco UCS system. Typically deployed as an active-active pair, the fabric interconnects of the system integrate all components into a single, highly available management domain that Cisco UCS Manager or the Cisco Intersight platform manages. Cisco UCS Fabric Interconnects provide a single unified fabric for the system, with low-latency, lossless, cut-through switching that supports LAN, storage-area network (SAN), and management traffic using a single set of cables (Figure 8).

Figure 8. Cisco UCS 6454 Fabric Interconnect



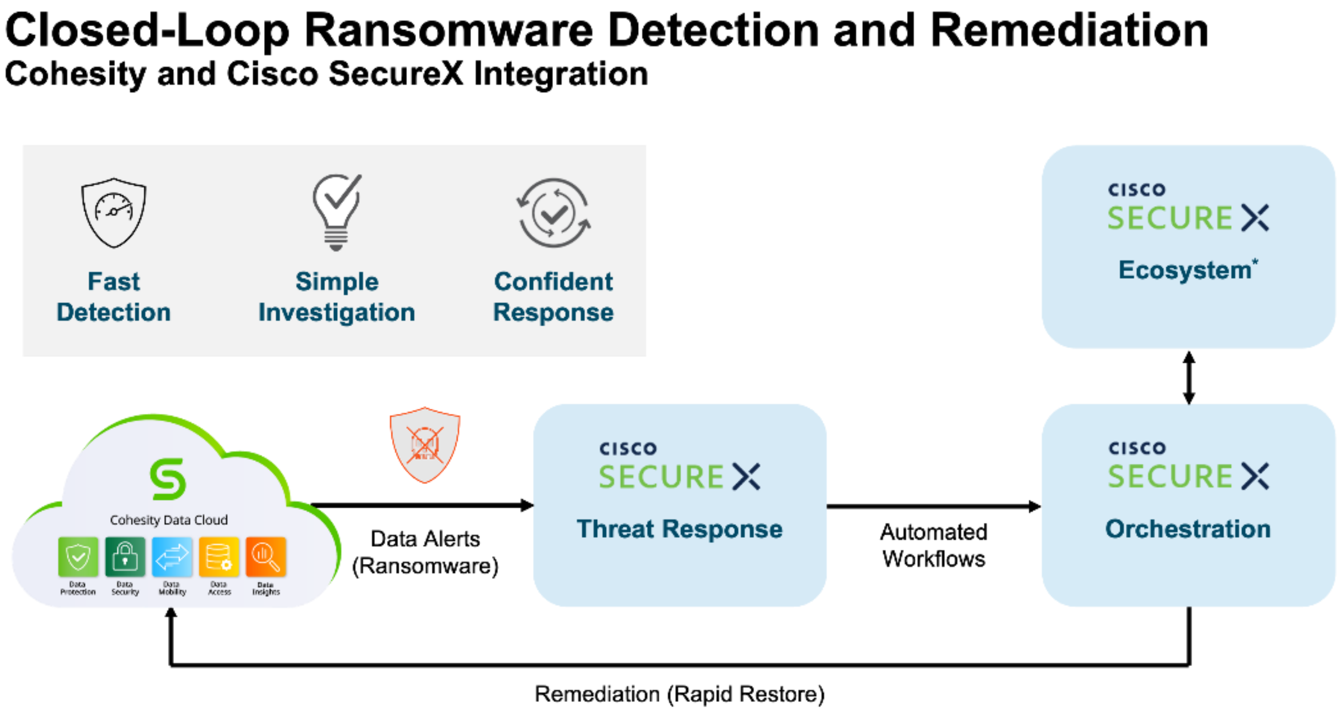
The Cisco UCS 6454 used in the current design is a 54-port fabric interconnect. This 1RU device includes twenty-eight 10-/25-GE ports, four 1-/10-/25-GE ports, six 40-/100-GE uplink ports, and sixteen unified ports that can support 10-/25-GE or 8-/16-/32-Gbps Fibre Channel, depending on the Small Form-Factor Pluggable (SFP) adapter.

Note: For supporting the Cisco UCS X-Series, you must configure the fabric interconnects in Cisco Intersight managed mode. This option replaces the local management with Cisco Intersight cloud (or appliance)-based management.

SecureX and Cohesity Data Cloud Integration

Cohesity with Cisco SecureX is the first-of-its-kind integrated data protection solution with Cisco SecureX. This integration automates the delivery of critical security information to organizations facing ransomware threats, helping to accelerate time to discovery, investigation, and remediation. It leverages the Cohesity Data Cloud's anomaly detection capability and automates the delivery of alerts into SecureX that indicate data and workloads may have been compromised. Security teams can then leverage Cisco SecureX facilities to expedite investigation within Cisco SecureX, and if needed, initiate a snapshot recovery from within Cisco SecureX for a closed-loop remediation.

Figure 9. Cisco SecureX and the Cohesity Data Cloud Integration Workflow


Closed-Loop Ransomware Detection and Remediation
Cohesity and Cisco SecureX Integration
Fast Detection
Simple Investigation
Confident Response
CISCO SECURE X Ecosystem*
Cohesity Data Cloud
Data Protection
Data Security
Data Mobility
Data Access
Data Insights
Data Alerts (Ransomware)
CISCO SECURE X Threat Response
Automated Workflows
CISCO SECURE X Orchestration
Remediation (Rapid Restore)

* Includes Cohesity as the first data protection solution provider

Cohesity Data Cloud

Cohesity has built a unique solution based on the same architectural principles employed by cloud hyperscalers managing consumer data but optimized for the enterprise world. The secret to the hyperscalers' success lies in their architectural approach, which has three major components: a distributed file system—a single platform—to store data across locations, a single logical control plane through which to manage it, and the ability to run and expose services atop this platform to provide new functionality through a collection of applications. The Cohesity Data Cloud platform takes this same three-tier hyperscaler architectural approach and adapts it to the specific needs of enterprise data management.

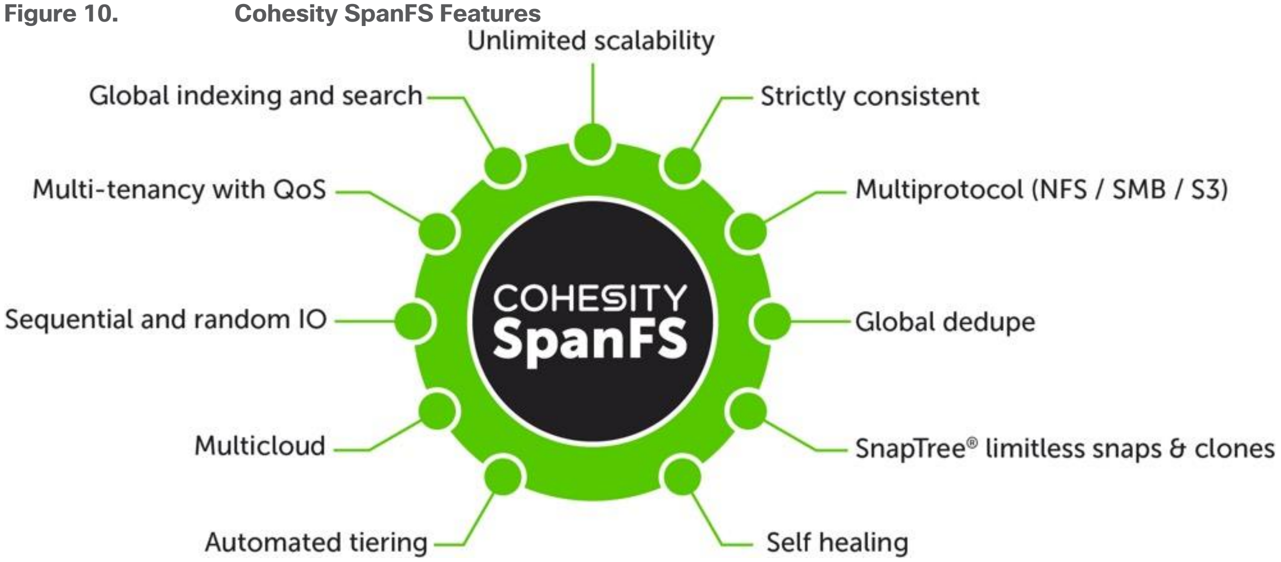
Helios is the user interface or control plane in which all customers interact with their data and Cohesity products. It provides a single view and global management of all your Cohesity clusters, whether on-premises, cloud, or Virtual Edition, regardless of cluster size. You can quickly connect clusters to Helios and then access them from anywhere using an internet connection and your Cohesity Support Portal credentials.

SpanFS: A Unique File System that Powers the Cohesity Data Cloud Platform

The foundation of the Cohesity Data Cloud Platform is Cohesity SpanFS, a 3rd generation web-scale distributed file system. SpanFS enables the consolidation of all data management services, data, and apps onto a single software-defined platform, eliminating the need for the complex jumble of siloed infrastructure required by the traditional approach.

Predicated on SpanFS, the Data Cloud Platform's patented design allows all data management infrastructure functions– including backup and recovery, disaster recovery, long-term archival, file services and object storage, test data management, and analytics—to be run and managed in the same software environment at scale, whether in the public cloud, on-premises, or at the edge. Data is shared rather than siloed, stored efficiently rather than wastefully, and visible rather than kept in the dark—simultaneously addressing the problem of mass data fragmentation while allowing both IT and business teams to holistically leverage its value for the first time. In order to meet modern data management requirements, Cohesity SpanFS provides the following as shown in Figure 10.

Figure 10. **Cohesity SpanFS Features**



Key SpanFS attributes and implications include the following:

- **Unlimited Scalability**: Start with as little as three nodes and grow limitlessly on-premises or in the cloud with a pay-as-you-grow model.
- **Strictly Consistent**: Ensure data resiliency with strict consistency across nodes within a cluster.
- Multi-Protocol: Support traditional NFS and SMB based applications as well as modern S3-based applications. Read and write to the same data volume with simultaneous multiprotocol access.
- **Global Dedupe**: Significantly reduce data footprint by deduplicating across data sources and workloads with global variable-length deduplication.
- **Unlimited Snapshots and Clones**: Create and store an unlimited number of snapshots and clones with significant space savings and no performance impact.
- **Self-Healing**: Auto-balance and auto-distribute workloads across a distributed architecture.
- **Automated Tiering**: Automatic data tiering across SSD, HDD, and cloud storage for achieving the right balance between cost optimization and performance.
- **Multi Cloud**: Native integrations with leading public cloud providers for archival, tiering, replication, and protect cloud-native applications.
- **Sequential and Random IO**: High I/O performance by auto-detecting the IO profile and placing data on the most appropriate media Multitenancy with QoS Native ability to support multiple tenants with QoS support, data isolation, separate encryption keys, and role-based access control.
- **Global Indexing and Search**: Rapid global search due to indexing of file and object metadata.

Red Hat Ansible

Ansible is an open-source tool for Infrastructure as Code (IaC). Ansible is also used for configuration management and application software deployment. Ansible is designed to be agentless, secure, and simple. Ansible available in Red Hat's Ansible Automation Platform is part of a suite of tools supported by Red Hat. Ansible manages endpoints and infrastructure components in an inventory file, formatted in YAML or INI. The inventory file can be a static file populated by an administrator or dynamically updated. Passwords and other sensitive data can be encrypted using Ansible Vault. Ansible uses playbooks to orchestrate the provisioning. Playbooks are written in human readable YAML format that is easy to understand. Ansible playbooks are executed against a subset of components in the inventory file. From a control machine, Ansible uses SSH or Windows Remote Management to remotely configure and provision target devices in the inventory based on the playbook tasks.

Ansible is used to provision Server Templates for All NVMe X210c nodes installed in Cisco UCS X-Series modular system. The Ansible playbooks detailed in this guide, are specific to the Cohesity Data Cloud configuration for successful deployment on Cisco UCS X-Series X210c nodes.

Architecture and Design Considerations

This chapter contains the following:

- Cisco UCSX 9108-25G IFM Deployment Architecture
- Cisco UCSX 9108-100G IFM Deployment Architecture
- Network Bond Modes with Cohesity and Cisco UCS Fabric Interconnect Managed Systems
- Licensing
- Physical Components
- Software Components

Cisco UCSX 9108-25G IFM Deployment Architecture

The Cohesity Data Cloud on Cisco UCS X-Series Modular System requires a minimum four (4) All NVMe X210c nodes. Each Cisco UCS X210c node is equipped with both the compute and All NVMe storage required to operate the Data Cloud and Cohesity storage domains to protect application workloads.

Figure 11 illustrates the deployment architecture overview of Cohesity on Cisco UCS X-Series Modular System, equipped with 4x X210c All NVMe nodes.

Figure 11. **Deployment Architecture Overview**

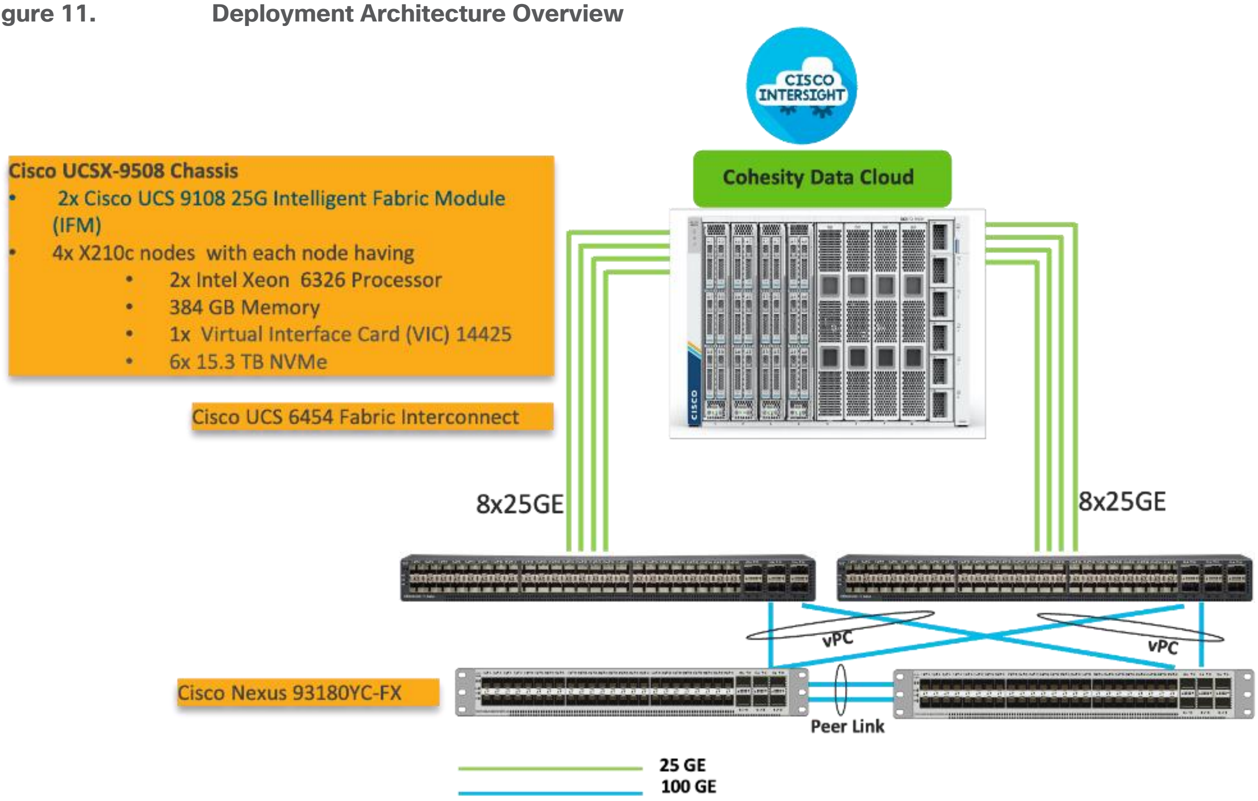
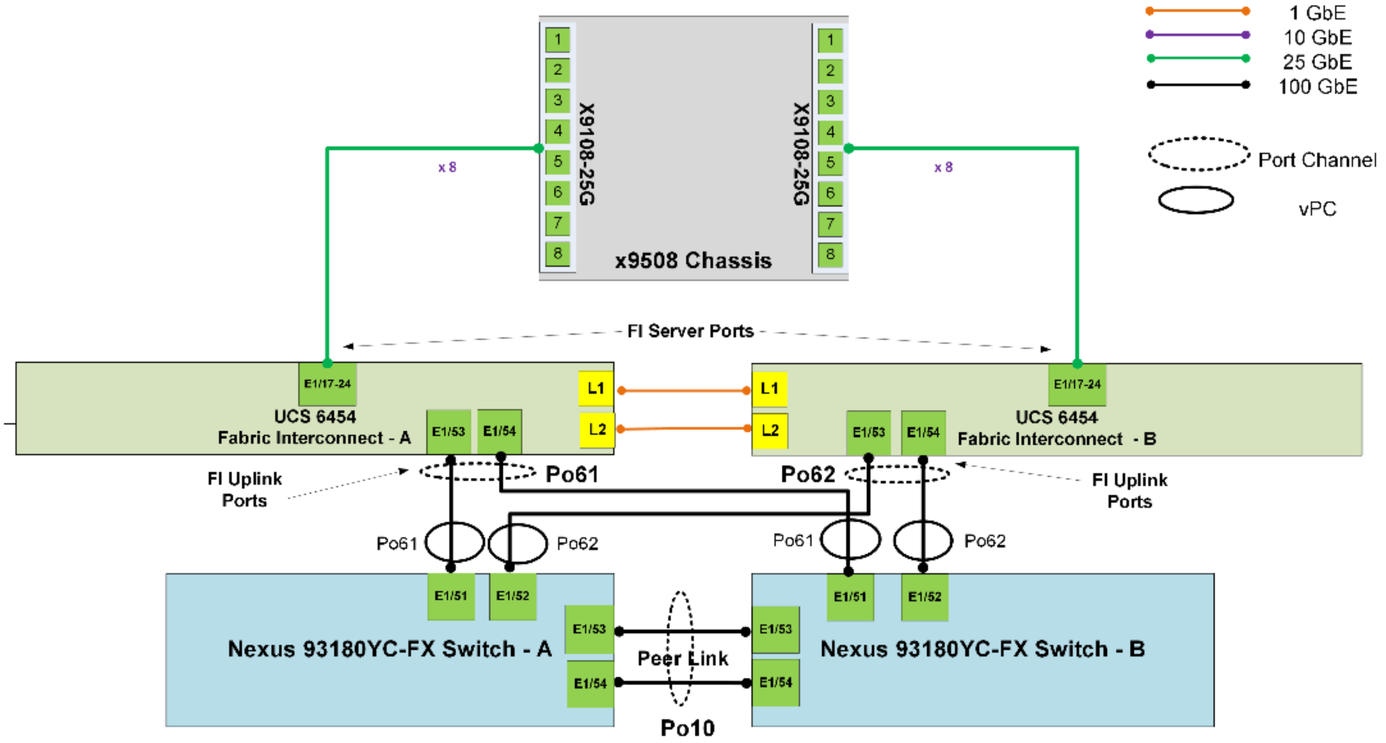

CISCO INTERSIGHT
Cohesity Data Cloud
Cisco UCSX-9508 Chassis
• 2x Cisco UCS 9108 25G Intelligent Fabric Module (IFM)
• 4x X210c nodes with each node having
• 2x Intel Xeon 6326 Processor
• 384 GB Memory
• 1x Virtual Interface Card (VIC) 14425
• 6x 15.3 TB NVMe
Cisco UCS 6454 Fabric Interconnect
8x25GE
8x25GE
vPC
vPC
Cisco Nexus 93180YC-FX
Peer Link
25 GE
100 GE

Figure 12 illustrates the cabling diagram for Cohesity on the Cisco UCS X-Series modular System.

Figure 12. Deployment Architecture Cabling



The reference hardware configuration includes:

- Two Cisco Nexus 93360YC-FX Switches in Cisco NX-OS mode provide the switching fabric.
- Two Cisco UCS 6454 Fabric Interconnects (FI) provide the chassis connectivity. One 100 Gigabit Ethernet port from each FI, configured as a Port-Channel, is connected to each Cisco Nexus 93360YC-FX.
- One Cisco UCS X9508 Chassis connects to fabric interconnects using Cisco UCSX 9108-25G Intelligent Fabric Modules (IFMs), where eight 25 Gigabit Ethernet ports are used on each IFM to connect to the appropriate FI.
- Cisco UCS X9508 Chassis is equipped with four (4) X210c nodes. Each node is equipped with 2x Intel Xeon Gold 6326 Processor, 384GB and 6x 15.3 TB NVMe providing a raw NVMe storage of ~ 91 TB per node.
- Cisco Intersight as the SaaS management platform for X-Series modular system.

Cisco UCSX 9108-100G IFM Deployment Architecture

The Cisco UCS X-Series Modular System future proofs customer investments by allowing upgrades of network components without the need to upgrade the Cisco UCS X210c certified Cohesity nodes. It allows you to upgrade to new advancements in server and network architecture. In the present architecture, the Cisco UCS X-Series chassis is equipped with 25G IFM modules and fourth generation Cisco UCS Fabric Interconnects. You can easily upgrade to 100G IFM modules and fifth generation Cisco UCS Fabric Interconnects on the same Cisco UCS X- Series 9508 chassis and without any modifications on the existing Cisco UCS X210c Cohesity certified nodes.

A key benefit of upgrading to the 100G IFM modules are a reduction in cabling and network ports. By leveraging the Cisco UCSX 9108-100G Intelligent Fabric Modules (IFM) and Cisco UCS 6536 Fabric Interconnects, you can reduce your cabling and network ports on the fabric interconnects by 4x. In the existing architecture leveraging Cisco UCSX 9108-25G IFM and eight (8) X210C Cohesity certified nodes, it is recommended to have 8x 25G cables from 25G IFM to FI6454, providing 400G network bandwidth across eight (8) nodes. With the Cisco UCSX 9108-100G IFM and Cisco UCS 6536 Fabric Interconnects, only two (2) 100G cables from each IFM are required and can achieve the same 400G network bandwidth across eight (8) nodes. This reduces the server ports and cables from sixteen (16) to just four (4).

Note: Even though this deployment guide is built with Cisco UCSX 9108-25G IFM and Cisco UCS 6454 Fabric Interconnects, you can leverage the same deployment procedures when installing Cisco UCSX 9108-100G IFM and Cisco UCS 6536 Fabric Interconnects.

Figure 13 illustrates the deployment architecture overview of Cohesity on Cisco UCS X-Series modular system, equipped with 4x X210c All NVMe nodes leveraging Cisco UCSX 9108-100G IFM and Cisco UCS 6536 Fabric Interconnects.

Figure 13. Deployment Architecture Overview (Cisco UCSX 9108-100G IFM and Cisco UCS 6536 Fabric Interconnects)

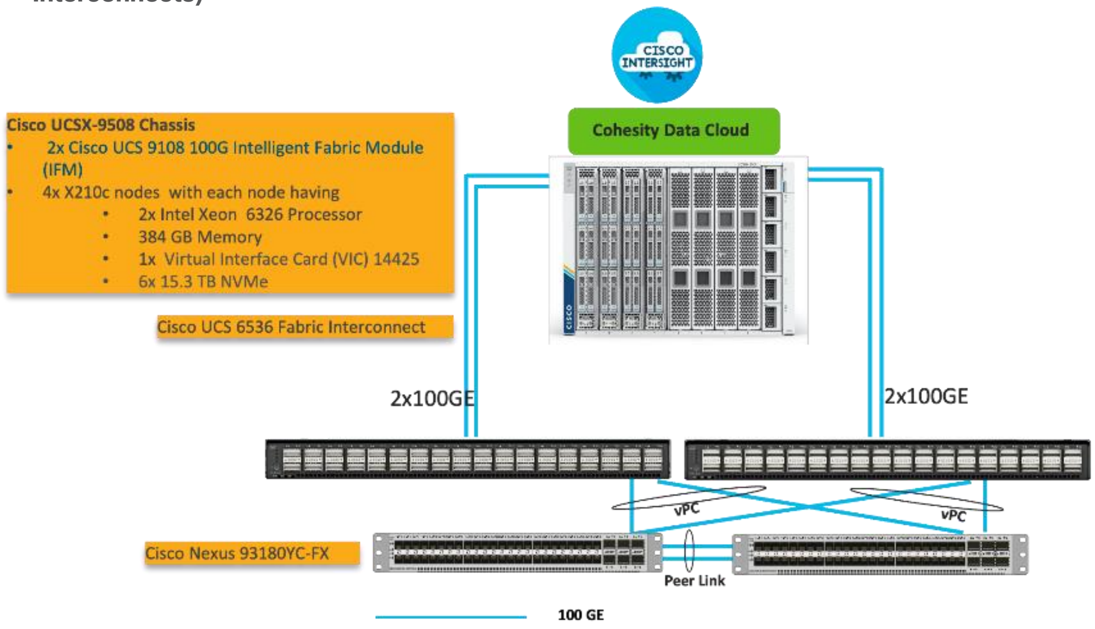
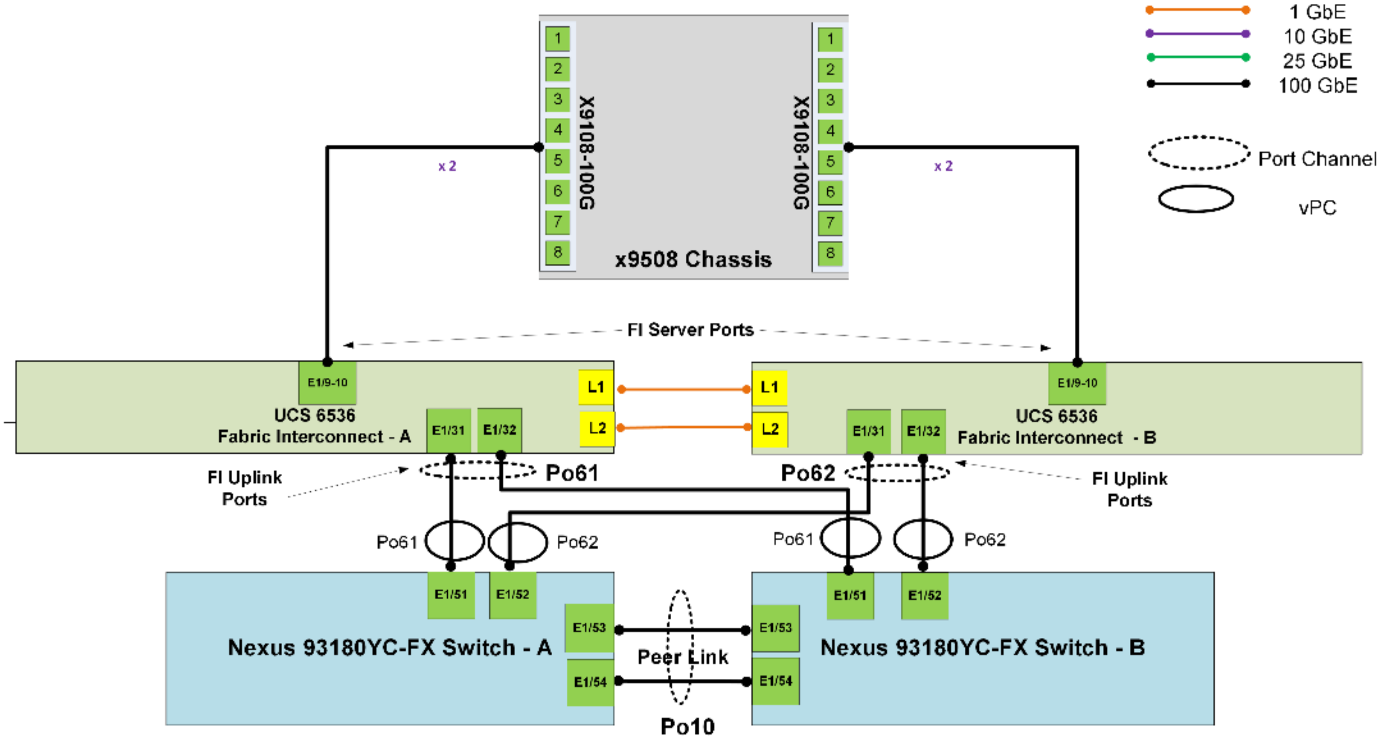

CISCO INTERSIGHT
Cohesity Data Cloud
Cisco UCSX-9508 Chassis
• 2x Cisco UCS 9108 100G Intelligent Fabric Module (IFM)
• 4x X210c nodes with each node having
• 2x Intel Xeon 6326 Processor
• 384 GB Memory
• 1x Virtual Interface Card (VIC) 14425
• 6x 15.3 TB NVMe
Cisco UCS 6536 Fabric Interconnect
2x100GE
2x100GE
vPC
vPC
Cisco Nexus 93180YC-FX
Peer Link
100 GE

Figure 14 illustrates the cabling diagram for Cohesity on Cisco UCS X-Series modular system with Cisco UCSX 9108-100G IFM and Cisco UCS 6536 Fabric Interconnects.

Figure 14. Deployment Architecture Cabling (Cisco UCSX 9108-100G IFM and Cisco UCS 6536 Fabric Interconnects)



The reference hardware configuration includes:

- Two Cisco Nexus 93360YC-FX Switches in Cisco NX-OS mode provide the switching fabric.
- Two Cisco UCS 6536 Fabric Interconnects (FI) provide the chassis connectivity. One 100 Gigabit Ethernet port from each FI, configured as a Port-Channel, is connected to each Cisco Nexus 93360YC-FX.
- One Cisco UCS X9508 Chassis connects to fabric interconnects using Cisco UCSX 9108-100G Intelligent Fabric Modules (IFMs), where eight 25 Gigabit Ethernet ports are used on each IFM to connect to the appropriate FI.
- Cisco UCS X9508 Chassis is equipped with four (4) X210c nodes. Each node is equipped with 2x Intel Xeon Gold 6326 Processor, 384GB and 6x 15.3 TB NVMe providing a raw NVMe storage of ~ 91 TB per node.
- Cisco Intersight as the SaaS management platform for the Cisco UCS X-Series modular system.

Network Bond Modes with Cohesity and Cisco UCS Fabric Interconnect Managed Systems

All teaming/bonding methods that are switch independent are supported in the Cisco UCS Fabric Interconnect environment. These bonding modes do not require any special configuration on the switch/UCS side.

The restriction is that any load balancing method used in a switch independent configuration must send traffic for a given source MAC address via a single Cisco UCS Fabric Interconnect other than in a failover event (where the traffic should be sent to the alternate fabric interconnect) and not periodically to redistribute load.

Using other load balancing methods that operate on mechanisms beyond the source MAC address (such as IP address hashing, TCP port hashing, and so on) can cause instability since a MAC address is flapped between UCS Fabric Interconnects. This type of configuration is unsupported.

Switch dependent bonding modes require a port-channel to be configured on the switch side. The fabric interconnect, which is the switch in this case, cannot form a port-channel with the VIC card present in the servers. Furthermore, such bonding modes will also cause MAC flapping on Cisco UCS and upstream switches and is unsupported.

Cisco UCS Servers with Linux Operating System and managed through fabric interconnects, support active-backup (mode 1), balance-tlb (mode 5) and balance-alb (mode 6). The networking mode in the Cohesity operating system (Linux based) deployed on Cisco UCS C-Series or Cisco UCS X-Series managed through a Cisco UCS Fabric Interconnect is validated with bond mode 1 (active-backup). For reference, go to: https://www.cisco.com/c/en/us/support/docs/servers-unified-computing/ucs-b-series-blade-servers/200519-UCS-B-series-Teaming-Bonding-Options-wi.html)

Licensing

Cisco Intersight Licensing

Cisco Intersight uses a subscription-based license with multiple tiers. Each Cisco endpoint (Cisco UCS server, Cisco HyperFlex system, or Cisco UCS Director software) automatically includes a Cisco Intersight Base when you access the Cisco Intersight portal and claim a device.

Cisco Intersight License Tiers

The Cisco Intersight license tiers are:

- **Cisco Intersight Essentials**—Essentials includes ALL functionality of Base with the additional features including Cisco UCS Central and Cisco IMC Supervisor entitlement, policy-based configuration with Server Profiles, firmware management, and evaluation of compatibility with the Hardware Compatibility List (HCL).
- **Cisco Intersight Advantage**—Advantage offers all features and functionality of the Base and Essentials tiers.
- **Cisco Intersight Premier**—In addition to the functionality provided in the Advantage tier, Intersight Premier includes full subscription entitlement for Cisco UCS Director at no additional cost.

More information about Cisco Intersight Licensing and the features supported in each license can be found here: https://intersight.com/help/saas/getting_started/licensing_requirements

In this solution, using Cisco Intersight Advantage License Tier enables the following:

- Configuration of Domain, Chassis Server Profiles for Cohesity on Cisco UCS X-Series modular system.
- Cohesity OS installation for X210c nodes through Cisco Intersight. This requires enabling an NFS/SMB/HTTPS repository which has the certified Cohesity Data Cloud software.

Physical Components

This section details the physical hardware, software revisions, and firmware versions required to install Cohesity Clusters running on Cisco Unified Computing System. A Cohesity on-premises cluster requires a minimum of three physical nodes deployed either on Cisco UCS X-Series or Cisco C-Series Cohesity-certified nodes. To allow minimal resiliency during a single node failure, it is recommended to have a minimum of four Cohesity-certified Cisco UCS nodes.

Table 1 lists the required hardware components and disk options for the Cohesity Data Cloud on Cisco UCS X-Series Modular Systems.

Table 1. Cisco UCS X-Series Modular System for the Cohesity Data Cloud

Component		Hardware
Fabric Interconnects		Two (2) Cisco UCS 6454 Fabric Interconnects
Chassis		Cisco UCS X 9508 Chassis
Server Node		4x Cisco UCS X-210C-M6 Server Node for Intel Scalable CPUs
Processors		Each server node equipped with two Intel 6326 2.9GHz/185W 16C/24MB
Memory		Each server node equipped with 384 GB of total memory using twelve (12) 32GB RDIMM DRx4 3200 (8Gb)
Disk Controller		Cisco UCS X10c Compute Pass Through Controller (Front)
Storage (each server node)	OS Boot	2x M.2 (240GB) with M.2 HW RAID Controller
	NVMe	6x 15.3 TB NVMe
Network (Each Server node)		Cisco UCS VIC 14425 4x25G mLOM for X Compute Node
IFM		2 x UCS 9108-25G IFM for 9508 Chassis

Software Components

Table 2 lists the software components and the versions required for the Cohesity Data Cloud and Cisco UCS X-Series Modular System, as tested, and validated in this document.

Table 2. Software Components

Component	Version
Cohesity Data Cloud	cohesity-6.6.0d_u6_release-20221204_c03629f0
Cisco Fabric Interconnect 6454	4.2 (3d)
Intelligent Fabric Management (IFM) UCSX-I-9108-25G	4.2 (3c)
Cisco X210C node	5.1(0.230054)

Solution Deployment

This chapter contains the following:

- Prerequisites
- Cisco Intersight Account
- Setup Intersight Managed Mode Setup (IMM)
- Setup Domain Profile
- Setup UCS X9508 Chassis Profile
- Manual Setup Server Template
- Ansible Automation Server Template
- Install Cohesity on Cisco UCS X210c Nodes
- Configure Cohesity Data Cloud

This chapter describes the solution deployment, Cohesity Data Cloud on Cisco UCS X-Series Modular System, with step-by-step procedures for implementing and managing the solution.

Prerequisites

Prior to beginning the installation activities, complete the following necessary tasks and gather the required information.

IP addressing

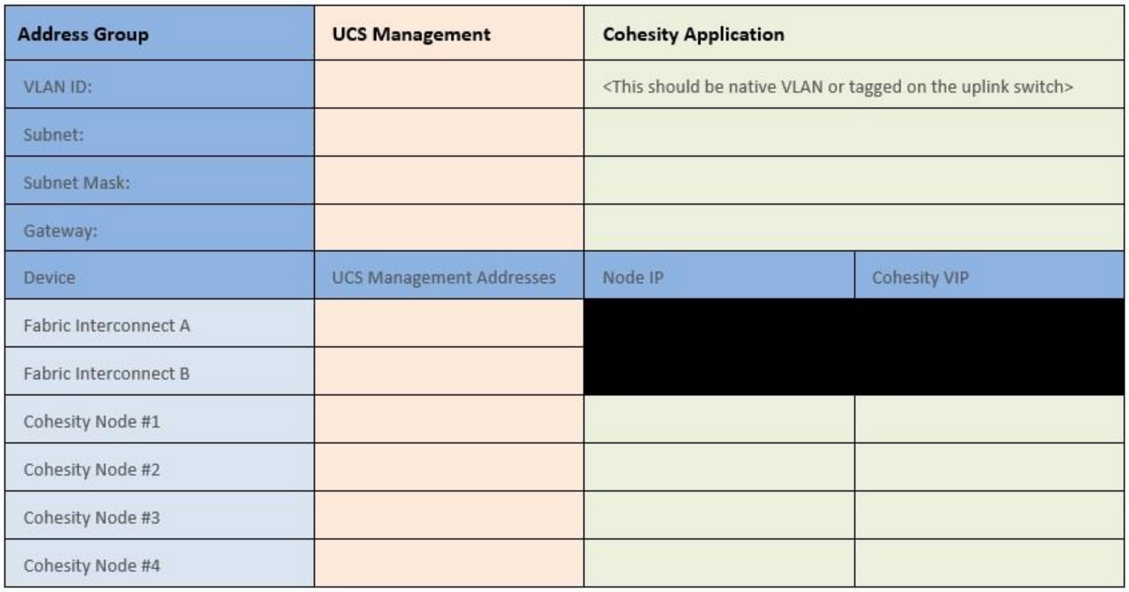
IP addresses for the Cohesity Data Cloud on Cisco UCS X-Series modular system, need to be allocated from the appropriate subnets and VLANs to be used. IP addresses that are used by the system are comprised of the following groups:

- Cisco X-Series Management: These addresses are used and assigned as management IPs for Cisco UCS Fabric interconnects. Two IP addresses are used; one address is assigned to each Cisco UCS Fabric Interconnect, this address should be routable to https://intersight.com or you can have a proxy configuration.
- Cisco UCSX-9108 IFM modules management: Each IFM is managed through an IMC Access policy mapped to IP pools through the chassis profile.
- Cisco UCS X210C node management: Each Cisco UCS X210C is managed through an IMC Access policy mapped to IP pools through the Server Profile. Currently, for Cisco X-Series nodes, only In-Band configuration is supported for IMC Access Policy. One IP is allocated to each of the node configured through In-Band access policy.
- Cohesity Application: These addresses are used by the Linux OS on each Cohesity node, and the Cohesity software. Two IP addresses per node in the Cohesity cluster are required from the same subnet. These addresses can be assigned from the same subnet at the Cisco UCS Management addresses, or they may be separate.

Use the following tables to list the required IP addresses for the installation of a 4-node standard Cohesity cluster and review an example IP configuration.

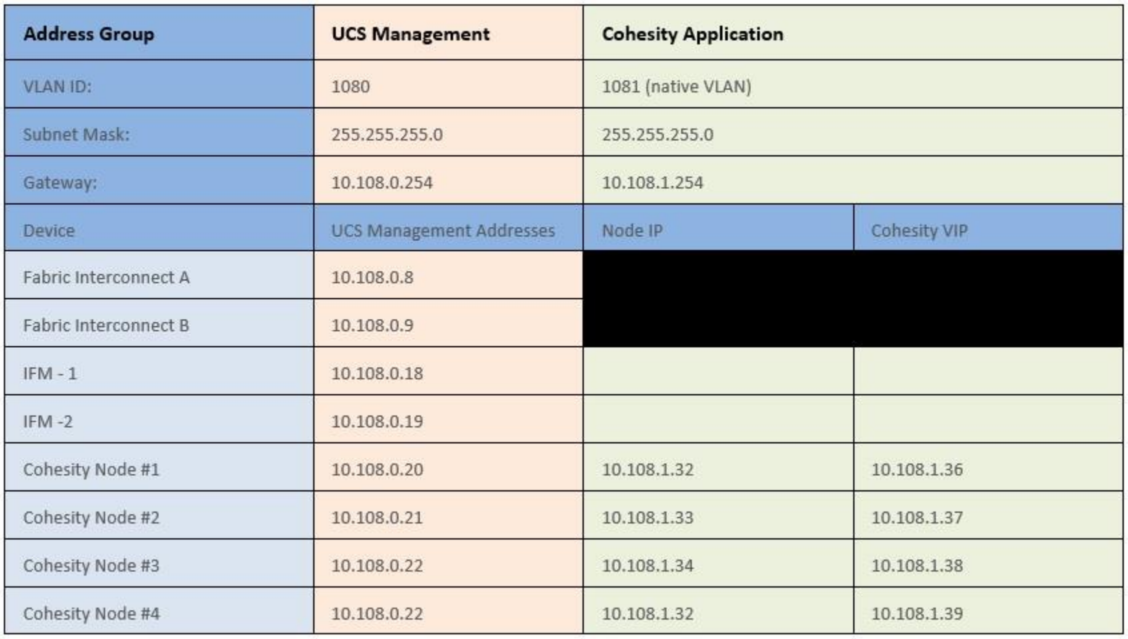
Note: Table cells shaded in black do not require an IP address.

Table 3. Cohesity Cluster IP Addressing



Address Group	UCS Management	Cohesity Application	
VLAN ID:		<This should be native VLAN or tagged on the uplink switch>	
Subnet:			
Subnet Mask:			
Gateway:			
Device	UCS Management Addresses	Node IP	Cohesity VIP
Fabric Interconnect A			
Fabric Interconnect B			
Cohesity Node #1			
Cohesity Node #2			
Cohesity Node #3			
Cohesity Node #4			

Table 4. Example Cohesity Cluster IP Addressing



Address Group	UCS Management	Cohesity Application	
VLAN ID:	1080	1081 (native VLAN)	
Subnet Mask:	255.255.255.0	255.255.255.0	
Gateway:	10.108.0.254	10.108.1.254	
Device	UCS Management Addresses	Node IP	Cohesity VIP
Fabric Interconnect A	10.108.0.8		
Fabric Interconnect B	10.108.0.9		
IFM - 1	10.108.0.18		
IFM -2	10.108.0.19		
Cohesity Node #1	10.108.0.20	10.108.1.32	10.108.1.36
Cohesity Node #2	10.108.0.21	10.108.1.33	10.108.1.37
Cohesity Node #3	10.108.0.22	10.108.1.34	10.108.1.38
Cohesity Node #4	10.108.0.22	10.108.1.32	10.108.1.39

DNS

DNS servers are required to be configured for querying Fully Qualified Domain Names (FQDN) in the Cohesity application group. DNS records need to be created prior to beginning the installation. At a minimum, it is required to create a single A record for the name of the Cohesity cluster, which answers with each of the virtual IP addresses used by the Cohesity nodes in round-robin fashion. Some DNS servers are not configured by default to return multiple addresses in round-robin fashion in response to a request for a single A record, please ensure your DNS server is properly configured for round-robin before continuing. The configuration can be tested by querying the DNS name of the Cohesity cluster from multiple clients and verifying that all of the different IP addresses are given as answers in turn.

Use the following tables to list the required DNS information for the installation and review an example configuration.

Table 5. DNS Server Information

Item	Value	A Records
DNS Server #1		
DNS Server #2		
DNS Domain		
UCS Domain Name		
Cohesity Cluster Name		

Table 6. DNS Server Example Information

Item	Value	A Records
DNS Server #1	10.108.0.6	
DNS Server #2		
DNS Domain		
UCS Domain Name	AA08-XSeries	

NTP

Consistent time clock synchronization is required across the components of the Cohesity cluster, provided by reliable NTP servers, accessible for querying in the Cisco UCS Management network group, and the Cohesity Application group.

Use the following tables to list the required NTP information for the installation and review an example configuration.

Table 7. NTP Server Information

Item	Value
NTP Server #1	
NTP Server #2	
Timezone	

Table 8. NTP Server Example Information

Item	Value
NTP Server #1	10.108.0.6
NTP Server #2	
Timezone	(UTC-8:00) Pacific Time

VLANs

Prior to the installation, the required VLAN IDs need to be documented, and created in the upstream network if necessary. Only the VLAN for the Cohesity Application group needs to be trunked to the two Cisco UCS Fabric Interconnects that manage the Cohesity cluster. The VLAN IDs must be supplied during the Cisco UCS configuration steps, and the VLAN names should be customized to make them easily identifiable.

Use the following tables to list the required VLAN information for the installation and review an example configuration.

Table 9. VLAN Information

Name	ID
<<IN-Band VLAN>>	
<<cohesity_vlan>>	

Table 10. VLAN Example Information

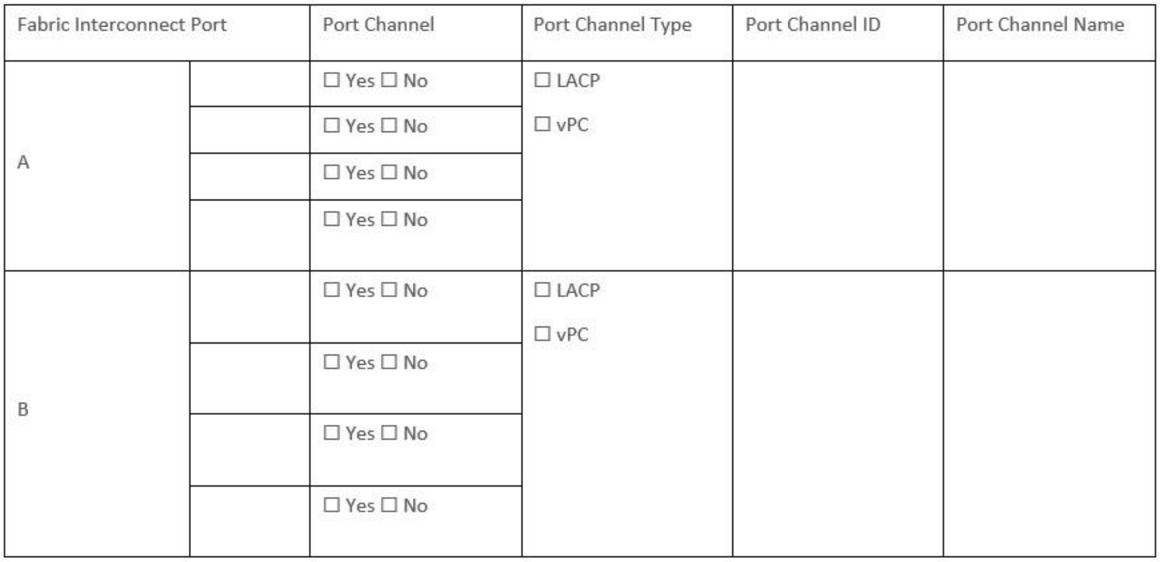
Name	ID
<<IN-Band VLAN>>	1080
<<cohesity_vlan>>	1081

Network Uplinks

The Cisco UCS uplink connectivity design needs to be finalized prior to beginning the installation.

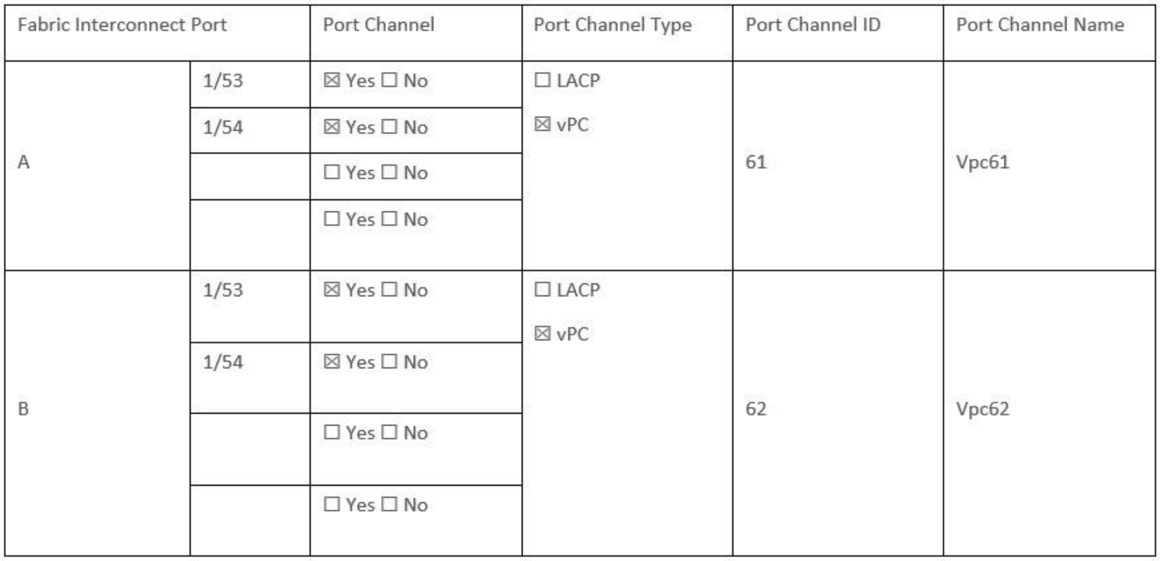
Use the following tables to list the required network uplink information for the installation and review an example configuration.

Table 11. Network Uplink Configuration



Fabric Interconnect Port		Port Channel	Port Channel Type	Port Channel ID	Port Channel Name
A		☐ Yes ☐ No	☐ LACP ☐ vPC		
		☐ Yes ☐ No			
		☐ Yes ☐ No			
		☐ Yes ☐ No			
B		☐ Yes ☐ No	☐ LACP ☐ vPC		
		☐ Yes ☐ No			
		☐ Yes ☐ No			
		☐ Yes ☐ No			

Table 12. Network Uplink Example Configuration



Fabric Interconnect Port		Port Channel	Port Channel Type	Port Channel ID	Port Channel Name
A	1/53	☒ Yes ☐ No	☐ LACP ☒ vPC	61	Vpc61
	1/54	☒ Yes ☐ No			
		☐ Yes ☐ No			
		☐ Yes ☐ No			
B	1/53	☒ Yes ☐ No	☐ LACP ☒ vPC	62	Vpc62
	1/54	☒ Yes ☐ No			
		☐ Yes ☐ No			
		☐ Yes ☐ No			

Usernames and Passwords

Several usernames and passwords need to be defined or known as part of the Cohesity installation and configuration process.

Use the following tables to list the required username and password information and review an example configuration.

Table 13. Usernames and Passwords

Account	Username	Password
Cohesity Administrator	admin	<<cohesity_admin_pw>>

Cisco Intersight Account

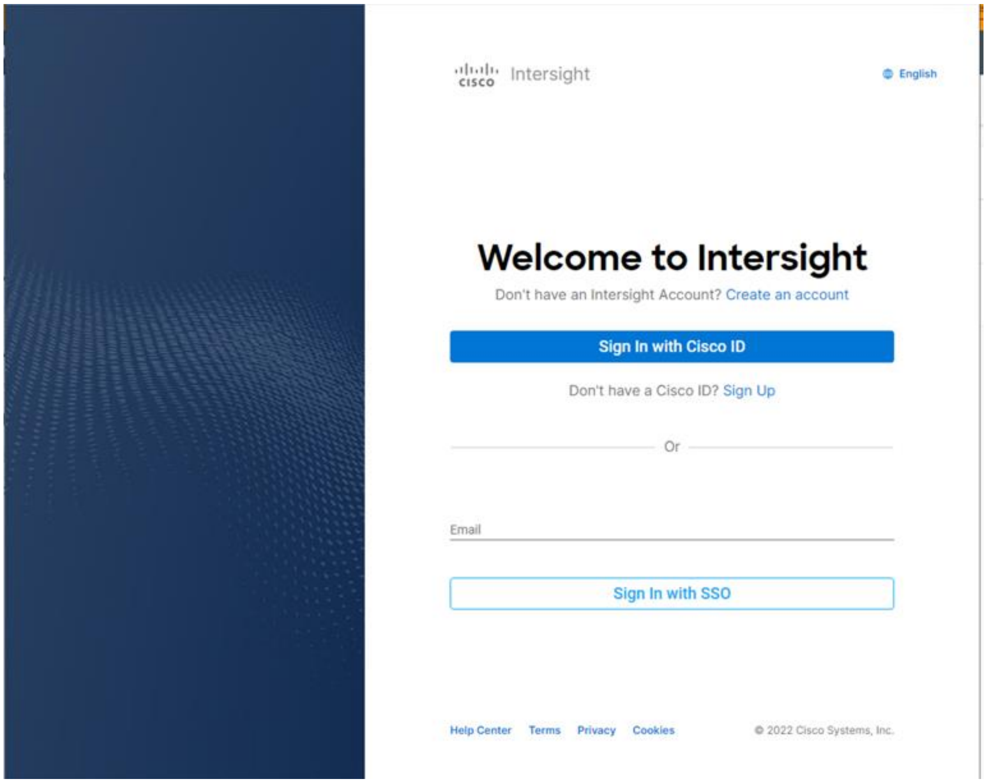
Procedure 1. Create an account on Cisco Intersight

Note: Skip this step if you already have a Cisco Intersight account.

The procedure to create an account in Cisco Intersight is explained below. For more details, go to: https://intersight.com/help/saas/getting_started/create_cisco_intersight_account

Step 1. Visit https://intersight.com/ to create your Intersight account. You must have a valid Cisco ID to create a Cisco Intersight account.

Step 2. Click Create an account.



Welcome to Intersight

Don't have an Intersight Account? Create an account

Don't have a Cisco ID? Sign Up

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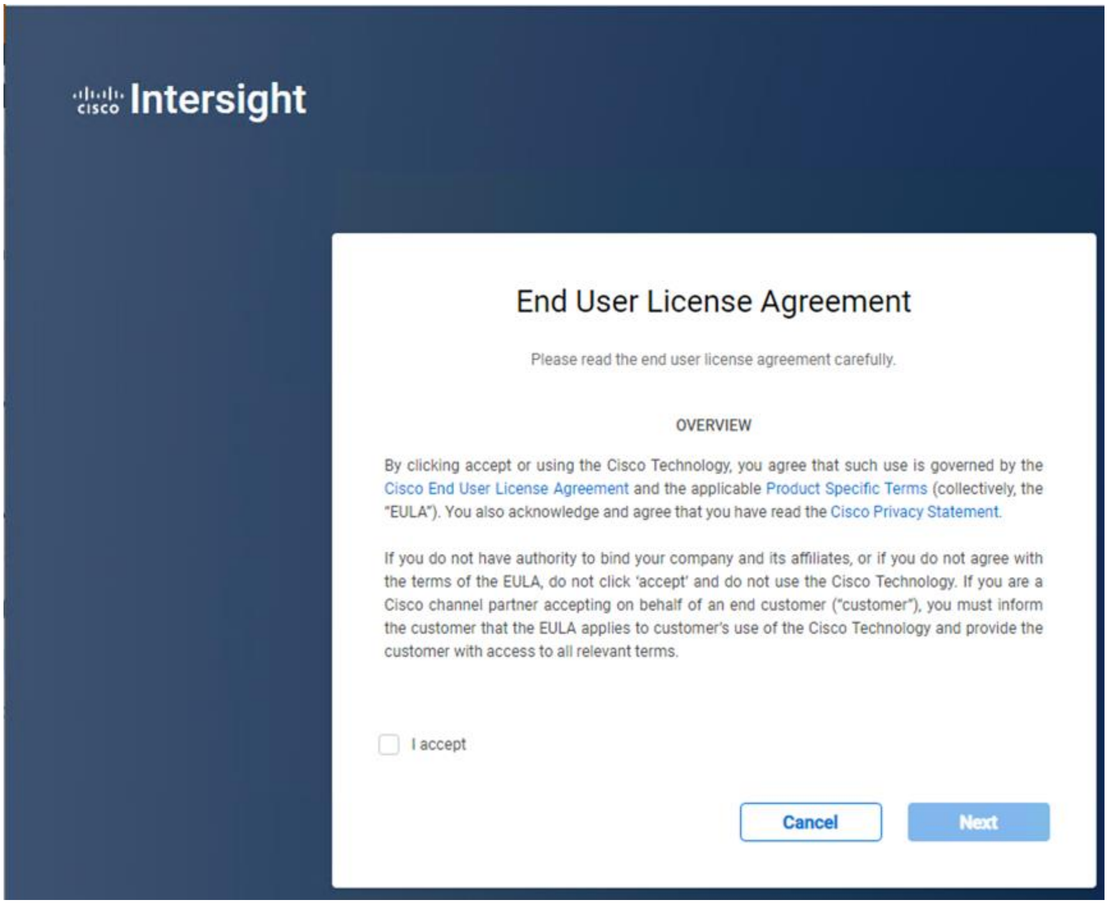
Step 3. Sign-In with your Cisco ID.

Step 4. Read the End User License Agreement and select I accept and click Next.



End User License Agreement

Please read the end user license agreement carefully.

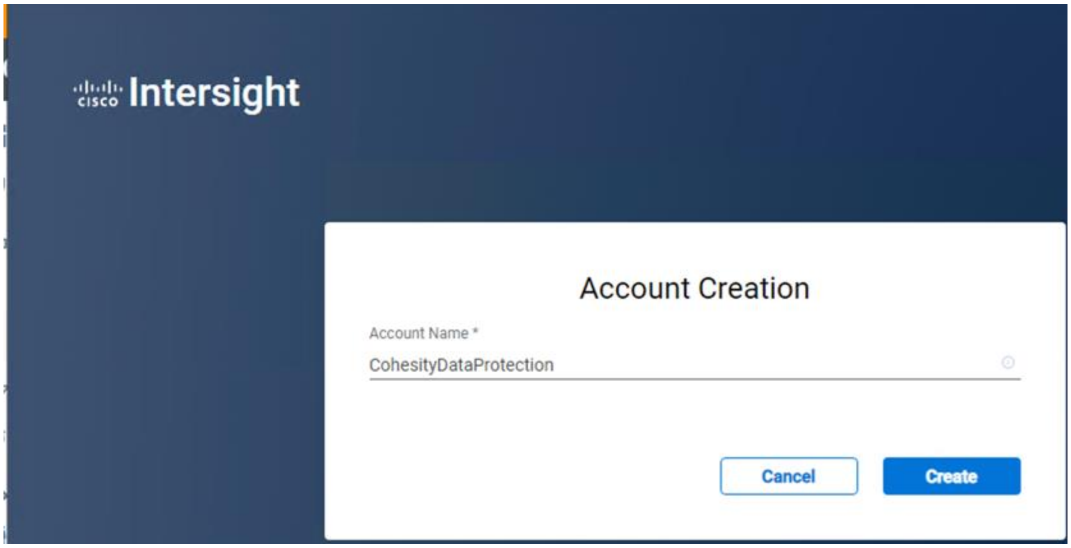
OVERVIEW

By clicking accept or using the Cisco Technology, you agree that such use is governed by the Cisco End User License Agreement and the applicable Product Specific Terms (collectively, the "EULA"). You also acknowledge and agree that you have read the Cisco Privacy Statement.

If you do not have authority to bind your company and its affiliates, or if you do not agree with the terms of the EULA, do not click 'accept' and do not use the Cisco Technology. If you are a Cisco channel partner accepting on behalf of an end customer ("customer"), you must inform the customer that the EULA applies to customer's use of the Cisco Technology and provide the customer with access to all relevant terms.

☐ I accept

Step 5. Provide a name for the account and click Create.

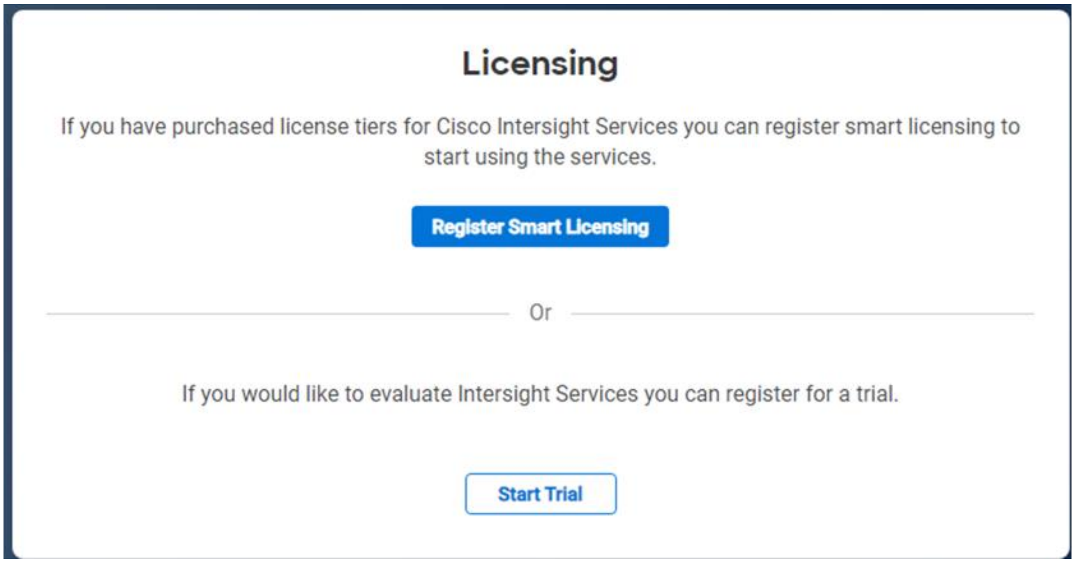


Account Creation

Account Name *

CohesityDataProtection

Step 6. Register for Smart Licensing or Start Trial.

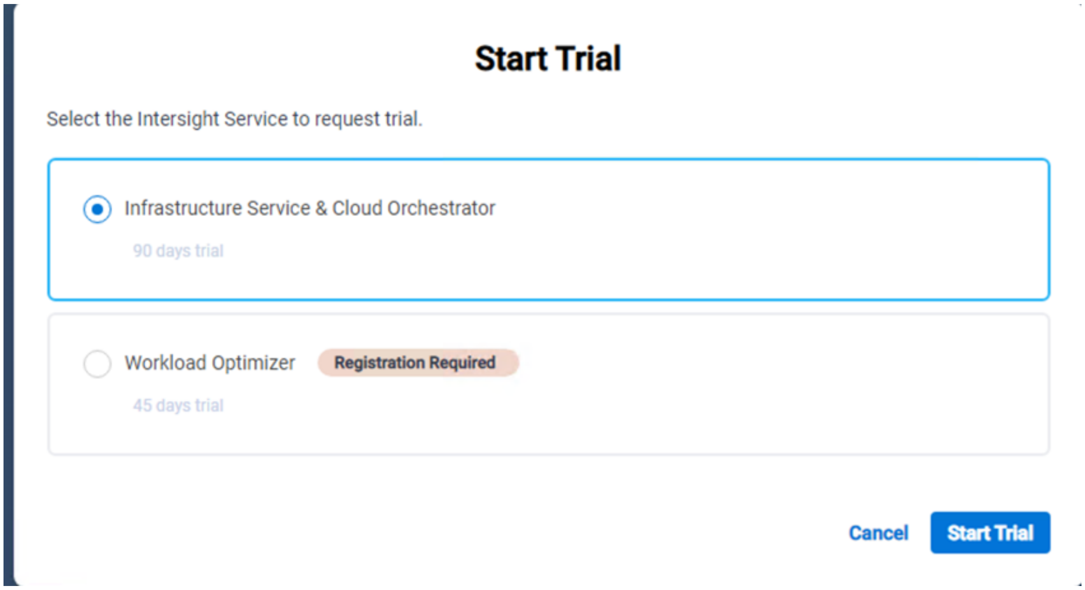


Licensing

If you have purchased license tiers for Cisco Intersight Services you can register smart licensing to start using the services.

If you would like to evaluate Intersight Services you can register for a trial.

Step 7. Select Infrastructure Service & Cloud Orchestrator and click Start Trial.



Start Trial

Select the Intersight Service to request trial.

● Infrastructure Service & Cloud Orchestrator

90 days trial

○ Workload Optimizer

45 days trial

Note: Go to: https://intersight.com/help/saas to configure Cisco Intersight Platform.

Setup Intersight Managed Mode Setup (IMM)

Procedure 1. Set up Cisco Intersight Managed Mode on Cisco UCS Fabric Interconnects

The Cisco UCS Fabric Interconnects need to be set up to support Cisco Intersight managed mode. When converting an existing pair of Cisco UCS fabric interconnects from Cisco UCS Manager mode to Intersight Manage Mode (IMM), first erase the configuration and reboot your system.

Note: Converting fabric interconnects to Cisco Intersight Managed Mode is a disruptive process, and configuration information will be lost. You are encouraged to make a backup of their existing configuration. If a software version that supports Intersight Managed Mode (4.1(3) or later) is already installed on Cisco UCS Fabric Interconnects, do not upgrade the software to a recommended recent release using Cisco UCS Manager. The software upgrade will be performed using Cisco Intersight to make sure Cisco UCS X-series firmware is part of the software upgrade.

Step 1. Configure Fabric Interconnect A (FI-A). On the Basic System Configuration Dialog screen, set the management mode to Intersight. All the remaining settings are similar to those for the Cisco UCS Manager Managed Mode (UCSM-Managed).

```
Cisco UCS Fabric Interconnect A
To configure the Cisco UCS for use in a FlexPod environment in ucsm managed mode, follow these steps:
Connect to the console port on the first Cisco UCS fabric interconnect.
  Enter the configuration method. (console/gui) ? console

  Enter the management mode. (ucsm/intersight)? intersight

  The Fabric interconnect will be configured in the intersight managed mode. Choose (y/n) to proceed: y

  Enforce strong password? (y/n) [y]: Enter

  Enter the password for "admin": <password>
  Confirm the password for "admin": <password>

  Enter the switch fabric (A/B) []: A

  Enter the system name:  <ucs-cluster-name>

  Physical Switch Mgmt0 IP address : <ucsa-mgmt-ip>
  Physical Switch Mgmt0 IPv4 netmask : <ucs-mgmt-mask>

  IPv4 address of the default gateway : <ucs-mgmt-gateway>

    DNS IP address : <dns-server-1-ip>

  Configure the default domain name? (yes/no) [n]: y

    Default domain name : <ad-dns-domain-name>

Following configurations will be applied:

    Management Mode=intersight
    Switch Fabric=A
    System Name=<ucs-cluster-name>
    Enforced Strong Password=yes
    Physical Switch Mgmt0 IP Address=<ucsa-mgmt-ip>
    Physical Switch Mgmt0 IP Netmask=<ucs-mgmt-mask>
    Default Gateway=<ucs-mgmt-gateway>
    DNS Server=<dns-server-1-ip>
    Domain Name=<ad-dns-domain-name>

  Apply and save the configuration (select 'no' if you want to re-enter)? (yes/no): yes
```

Step 2. After applying the settings, make sure you can ping the fabric interconnect management IP address. When Fabric Interconnect A is correctly set up and is available, Fabric Interconnect B will automatically discover Fabric Interconnect A during its setup process as shown in the next step.

Step 3. Configure Fabric Interconnect B (FI-B). For the configuration method, select console. Fabric Interconnect B will detect the presence of Fabric Interconnect A and will prompt you to enter the admin password for Fabric Interconnect A. Provide the management IP address for Fabric Interconnect B and apply the configuration.

```
Cisco UCS Fabric Interconnect B
Enter the configuration method. (console/gui) ? console

  Installer has detected the presence of a peer Fabric interconnect. This Fabric interconnect will be added
to the cluster. Continue (y/n) ? y

  Enter the admin password of the peer Fabric interconnect: <password>
    Connecting to peer Fabric interconnect... done
    Retrieving config from peer Fabric interconnect... done
    Peer Fabric interconnect Mgmt0 IPv4 Address: <ucsa-mgmt-ip>
    Peer Fabric interconnect Mgmt0 IPv4 Netmask: <ucs-mgmt-mask>

    Peer FI is IPv4 Cluster enabled. Please Provide Local Fabric Interconnect Mgmt0 IPv4 Address

  Physical Switch Mgmt0 IP address : <ucsb-mgmt-ip>

  Apply and save the configuration (select 'no' if you want to re-enter)? (yes/no): yes
```

Procedure 2. Set Up Cisco Intersight Organization

Note: In the present solution, “default” organization is used for all configurations. “Default” organization is automatically created once an Intersight account is created.

An organization is a logical entity which enables multi-tenancy through separation of resources in an account. The organization allows you to use the Resource Groups and enables you to apply the configuration settings on a subset of targets.

In this procedure, a Cisco Intersight organization is created where all Cisco Intersight Managed Mode configurations, including policies, are defined.

Step 1. Log into the Cisco Intersight portal.

Step 2. Select System. Click Settings (the gear icon).

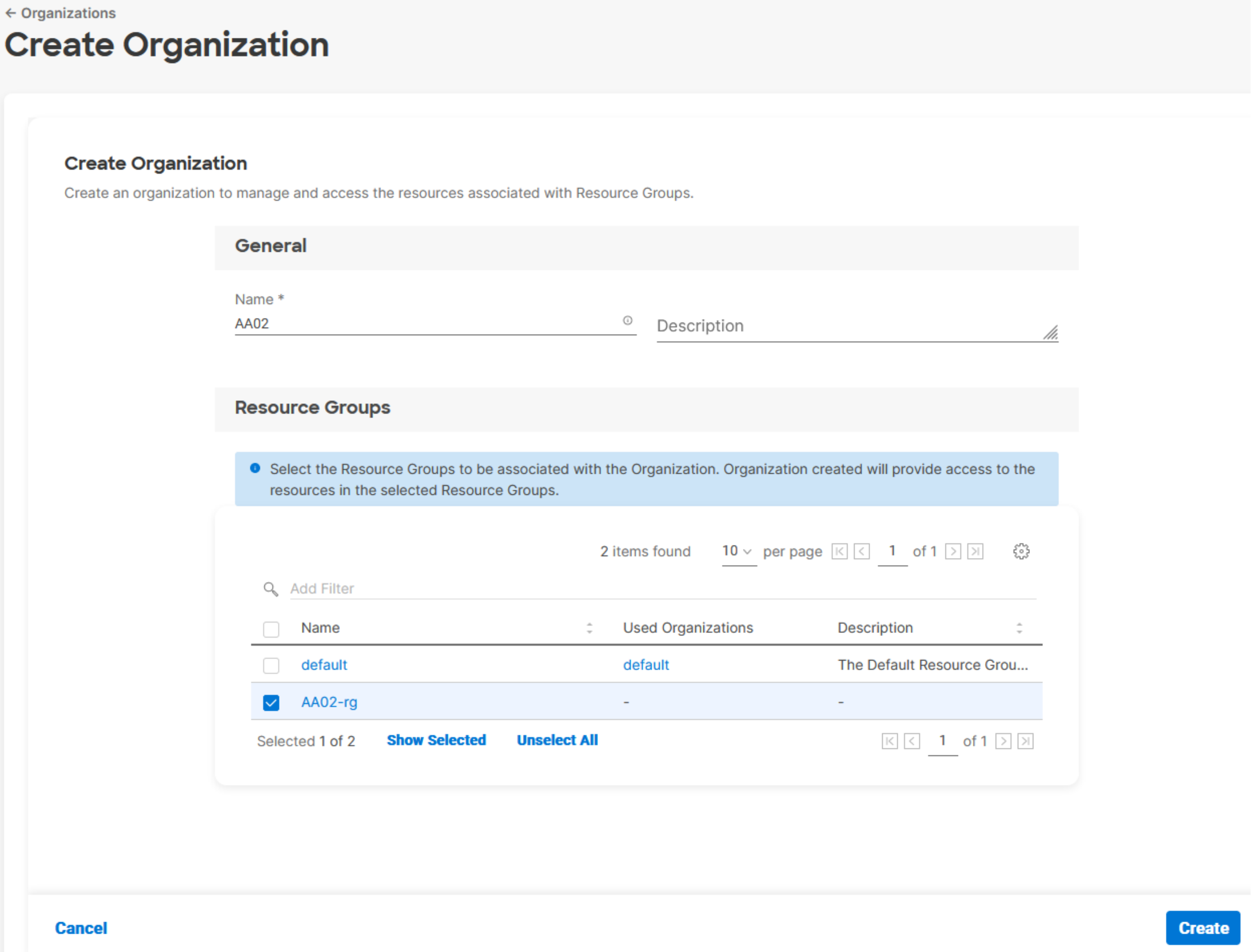
Step 3. Click Organizations.

Step 4. Click + Create Organization.

Step 5. Provide a name for the organization (for example, AA02).

Step 6. Select the Resource Group created in the last step (for example, AA02-rg).

Step 7. Click Create.



Create Organization

Create an organization to manage and access the resources associated with Resource Groups.

General

Name * AA02

Description

Resource Groups

Select the Resource Groups to be associated with the Organization. Organization created will provide access to the resources in the selected Resource Groups.

☐	Name	Used Organizations	Description
☐	default	default	The Default Resource Grou...
☑	AA02-rg	-	-

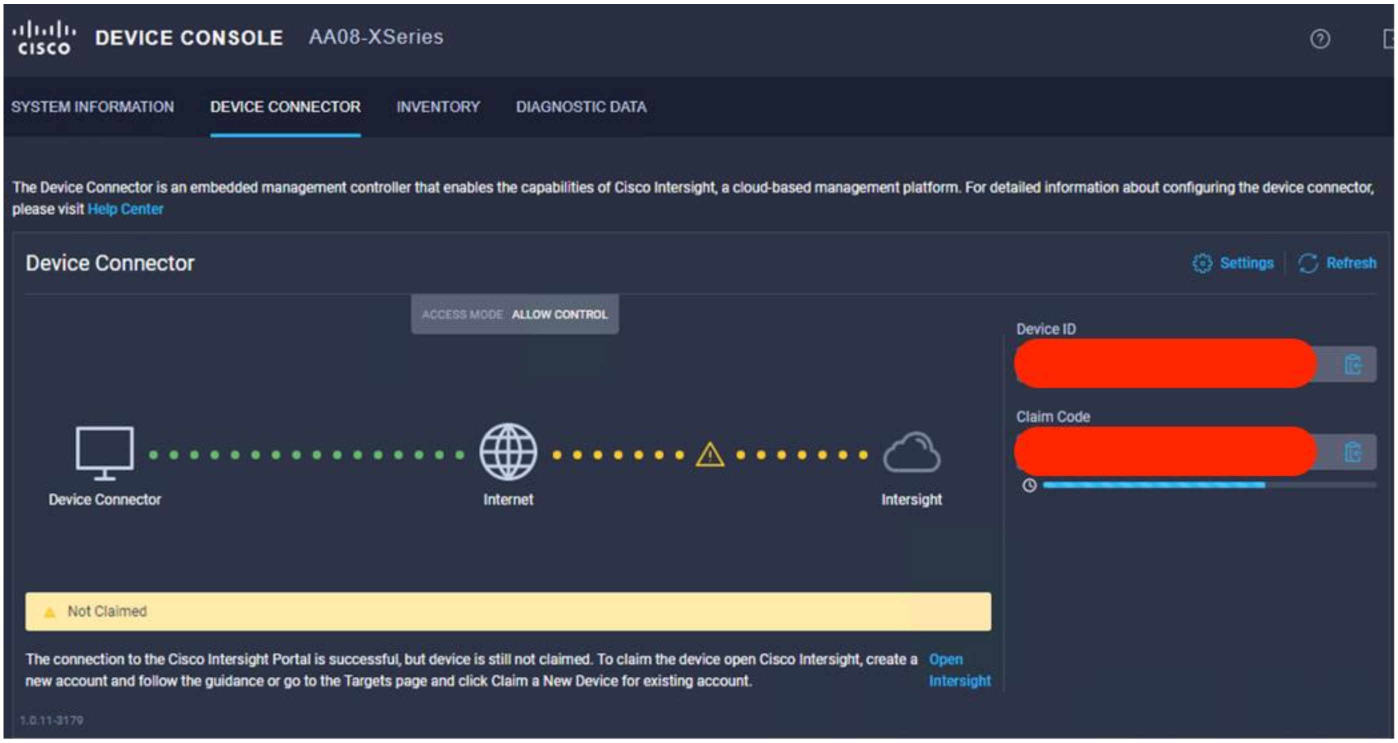
Selected 1 of 2

Procedure 3. Claim Cisco UCS Fabric Interconnects in Cisco Intersight

Note: Make sure the initial configuration for the fabric interconnects has been completed. Log into the Fabric Interconnect A Device Console using a web browser to capture the Cisco Intersight connectivity information.

Step 1. Use the management IP address of Fabric Interconnect A to access the device from a web browser and the previously configured admin password to log into the device.

Step 2. Under DEVICE CONNECTOR, the current device status will show “Not claimed.” Note or copy, the Device ID, and Claim Code information for claiming the device in Cisco Intersight.



The Device Connector is an embedded management controller that enables the capabilities of Cisco Intersight, a cloud-based management platform. For detailed information about configuring the device connector, please visit Help Center

Device Connector

Device ID [redacted]

Claim Code [redacted]

Not Claimed

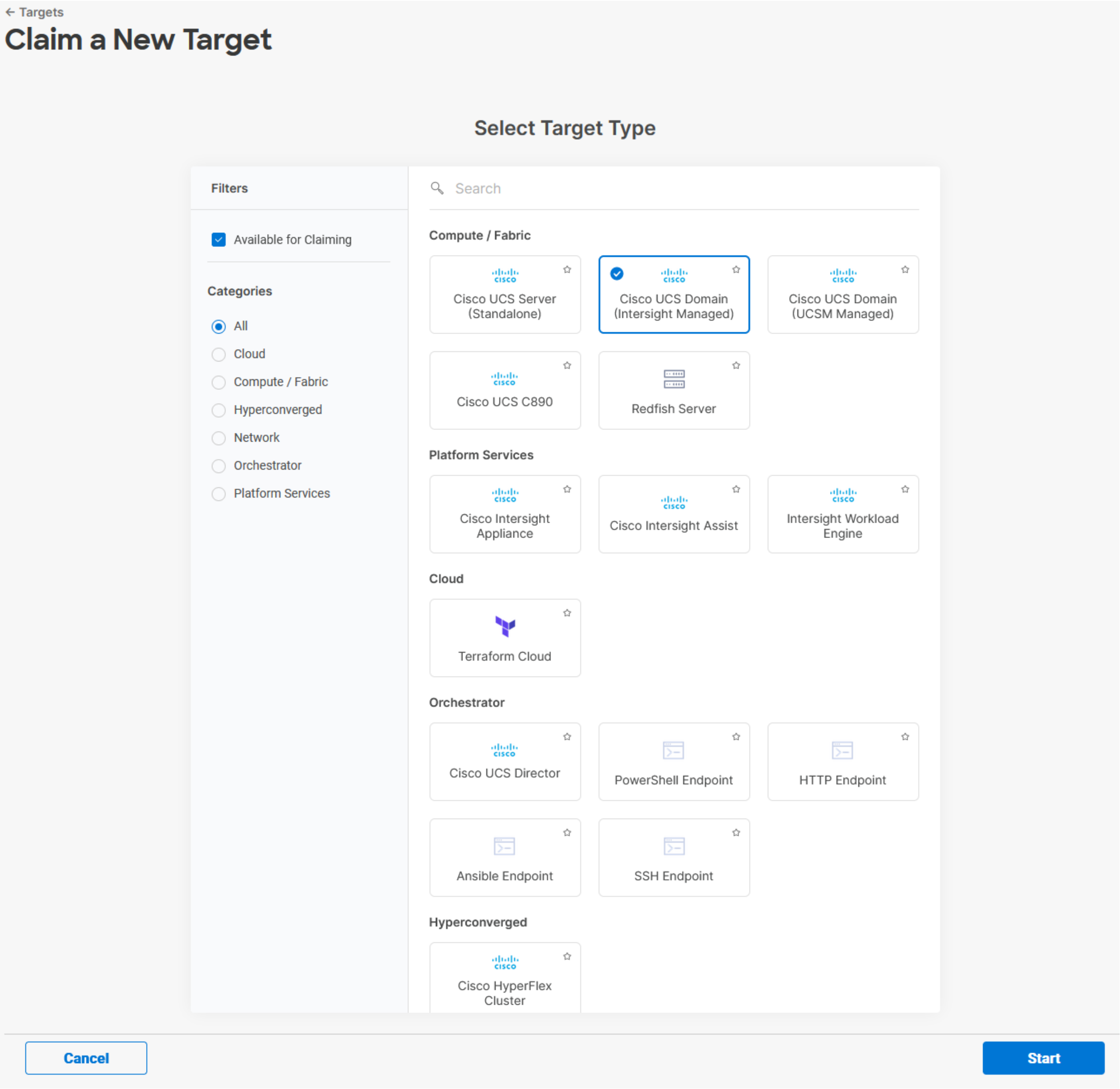
The connection to the Cisco Intersight Portal is successful, but device is still not claimed. To claim the device open Cisco Intersight, create a new account and follow the guidance or go to the Targets page and click Claim a New Device for existing account.

Step 3. Log into Cisco Intersight.

Step 4. Select System. Click Administration > Targets.

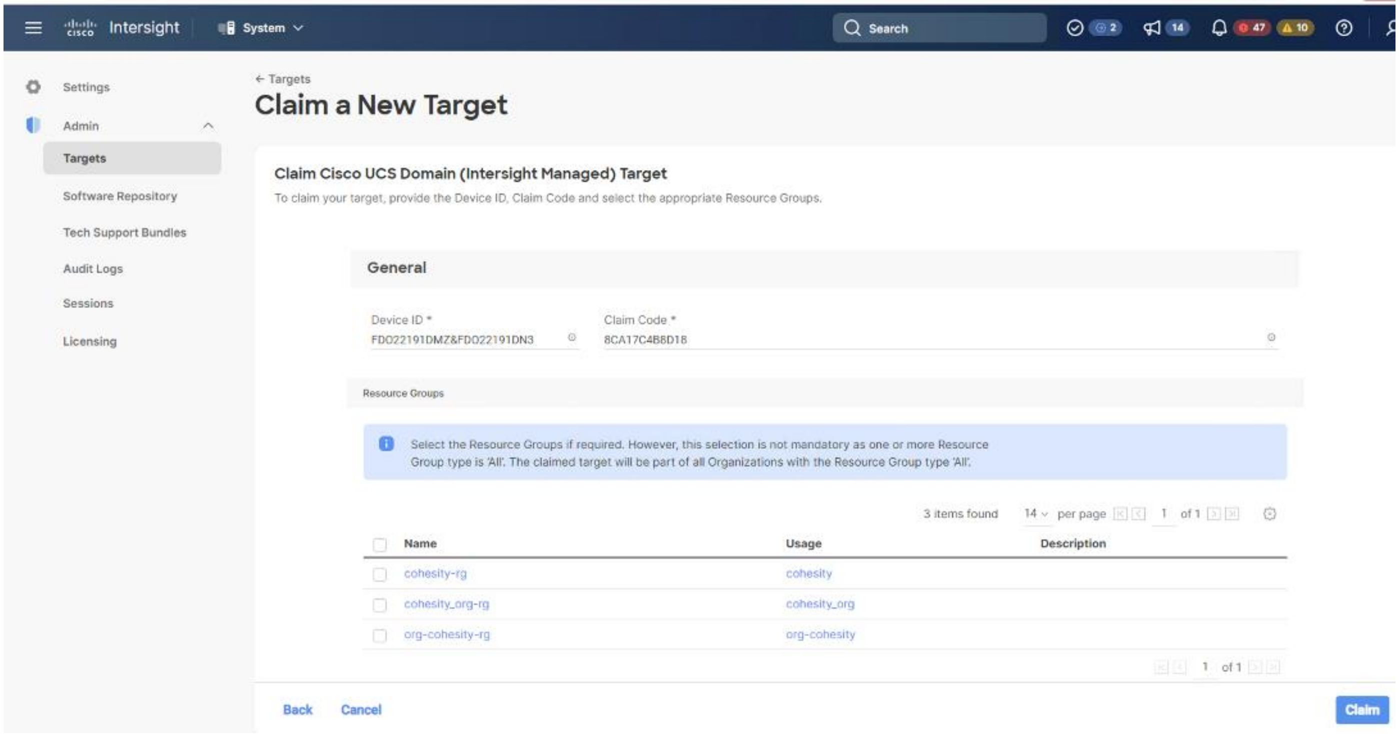
Step 5. Click Claim a New Target.

Step 6. Select Cisco UCS Domain (Intersight Managed) and click Start.



Step 7. Copy and paste the Device ID and Claim from the Cisco UCS FI to Intersight.

Step 8. Select the previously created Resource Group and click Claim.



Claim a New Target

Claim Cisco UCS Domain (Intersight Managed) Target

To claim your target, provide the Device ID, Claim Code and select the appropriate Resource Groups.

General

Device ID * FDO22191DMZ&FDO22191DN3

Claim Code * 8CA17C4B8D18

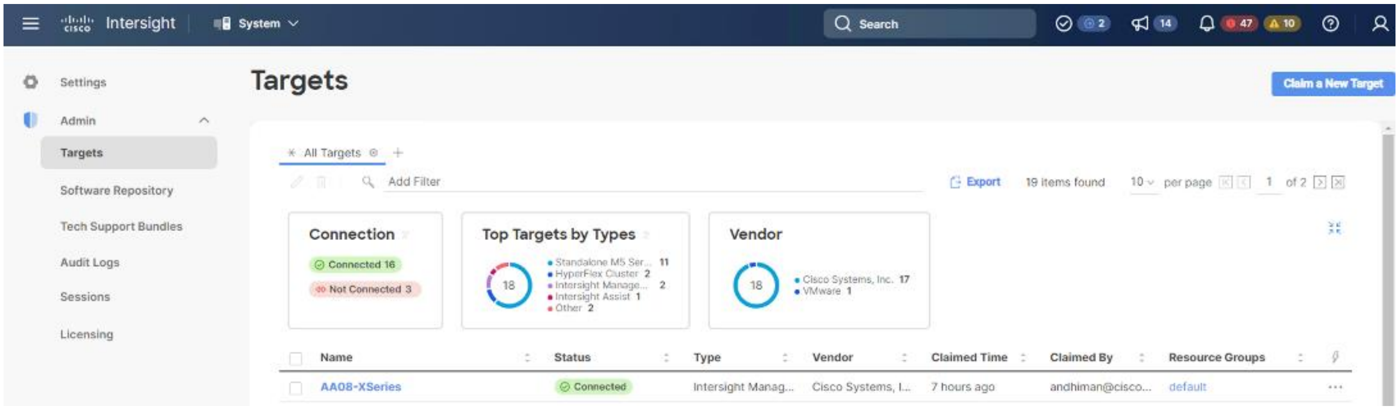
Resource Groups

Select the Resource Groups if required. However, this selection is not mandatory as one or more Resource Group type is 'All'. The claimed target will be part of all Organizations with the Resource Group type 'All'.

3 items found 14 per page 1 of 1

Name	Usage	Description
cohesity-rg	cohesity	
cohesity_org-rg	cohesity_org	
org-cohesity-rg	org-cohesity	

With a successful device claim, Cisco UCS FI should appear as a target in Cisco Intersight:



Targets

19 items found 10 per page 1 of 2

Connection: Connected 16, Not Connected 3

Top Targets by Types (18): Standalone M5 Ser... 11, HyperFlex Cluster 2, Intersight Manage... 2, Intersight Assist 1, Other 2

Vendor (18): Cisco Systems, Inc. 17, VMware 1

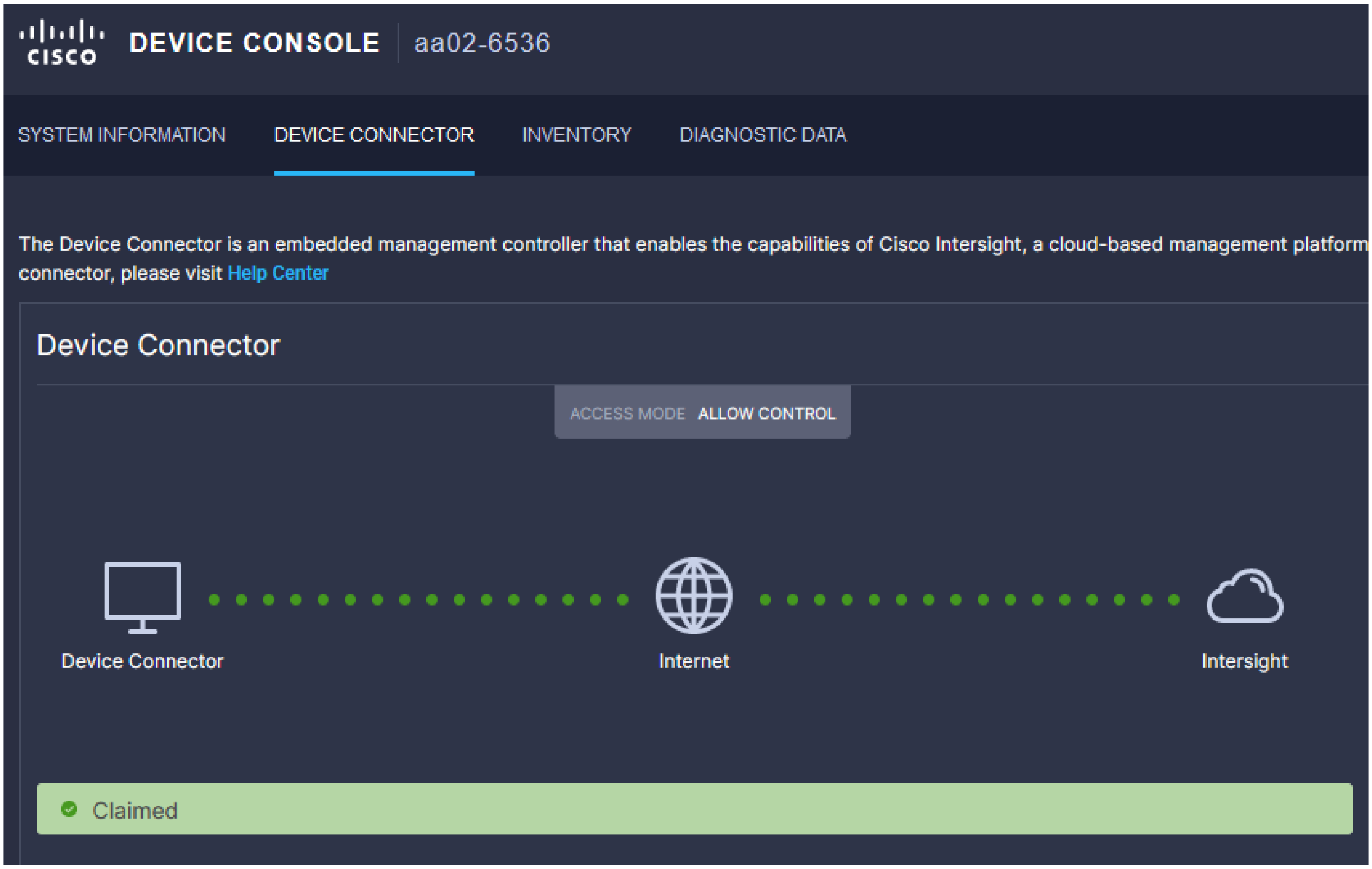
Name	Status	Type	Vendor	Claimed Time	Claimed By	Resource Groups
AA08-XSeries	Connected	Intersight Manag...	Cisco Systems, I...	7 hours ago	andhiman@cisco...	default

Step 9. In the Cisco Intersight window, click Settings and select Licensing. If this is a new account, all servers connected to the Cisco UCS domain will appear under the Base license tier. If you have purchased Cisco Intersight licenses and have them in your Cisco Smart Account, click Register and follow the prompts to register this Cisco Intersight account to your Cisco Smart Account. Cisco Intersight also offers a one-time 90-day trial of Advantage licensing for new accounts. Click Start Trial and then Start to begin this evaluation. The remainder of this section will assume Advantage licensing. A minimum of Cisco Intersight Essentials licensing is required to run the Cisco UCS X-Series platform.

Procedure 4. Verify Addition of Cisco UCS Fabric Interconnects to Cisco Intersight

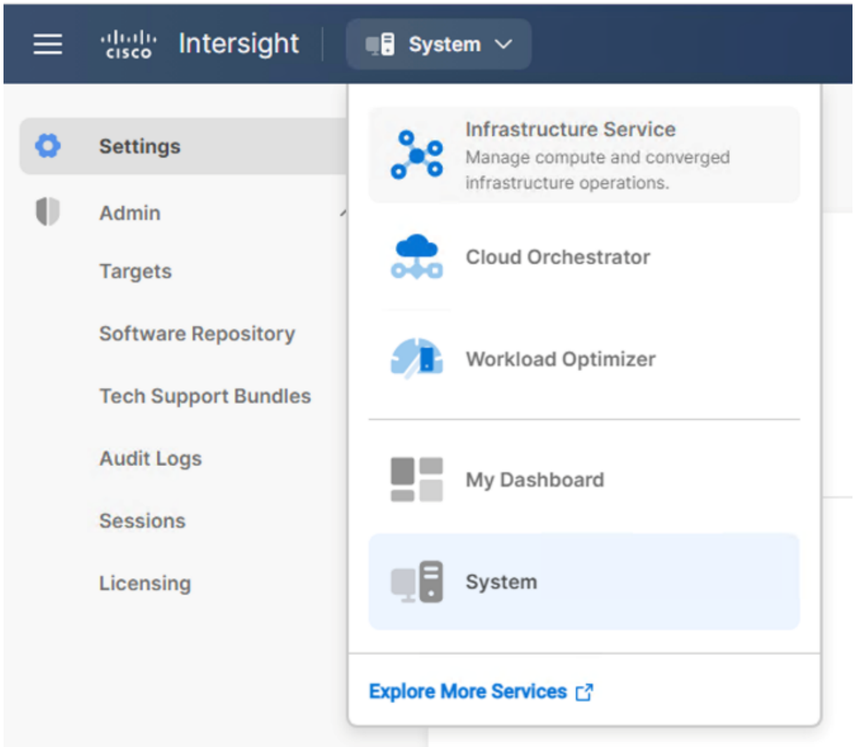
Step 1. Log into the web GUI of the Cisco UCS fabric interconnect and click the browser refresh button.

The fabric interconnect status should now be set to **Claimed**.

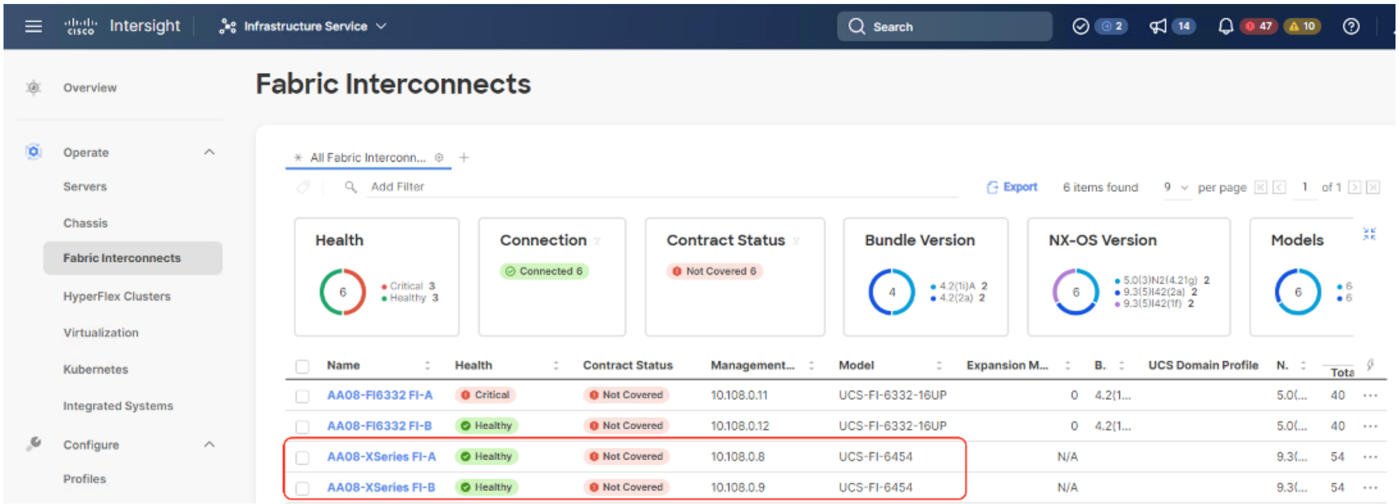


The Device Connector is an embedded management controller that enables the capabilities of Cisco Intersight, a cloud-based management platform
connector, please visit Help Center

Step 2. Select Infrastructure Service.



Step 3. Go to the Fabric Interconnects tab and verify the pair of fabric interconnects are visible on the Intersight dashboard.



Fabric Interconnects

6 items found 9 per page 1 of 1

Health: 6 — Critical 3, Healthy 3

Connection: Connected 6

Contract Status: Not Covered 6

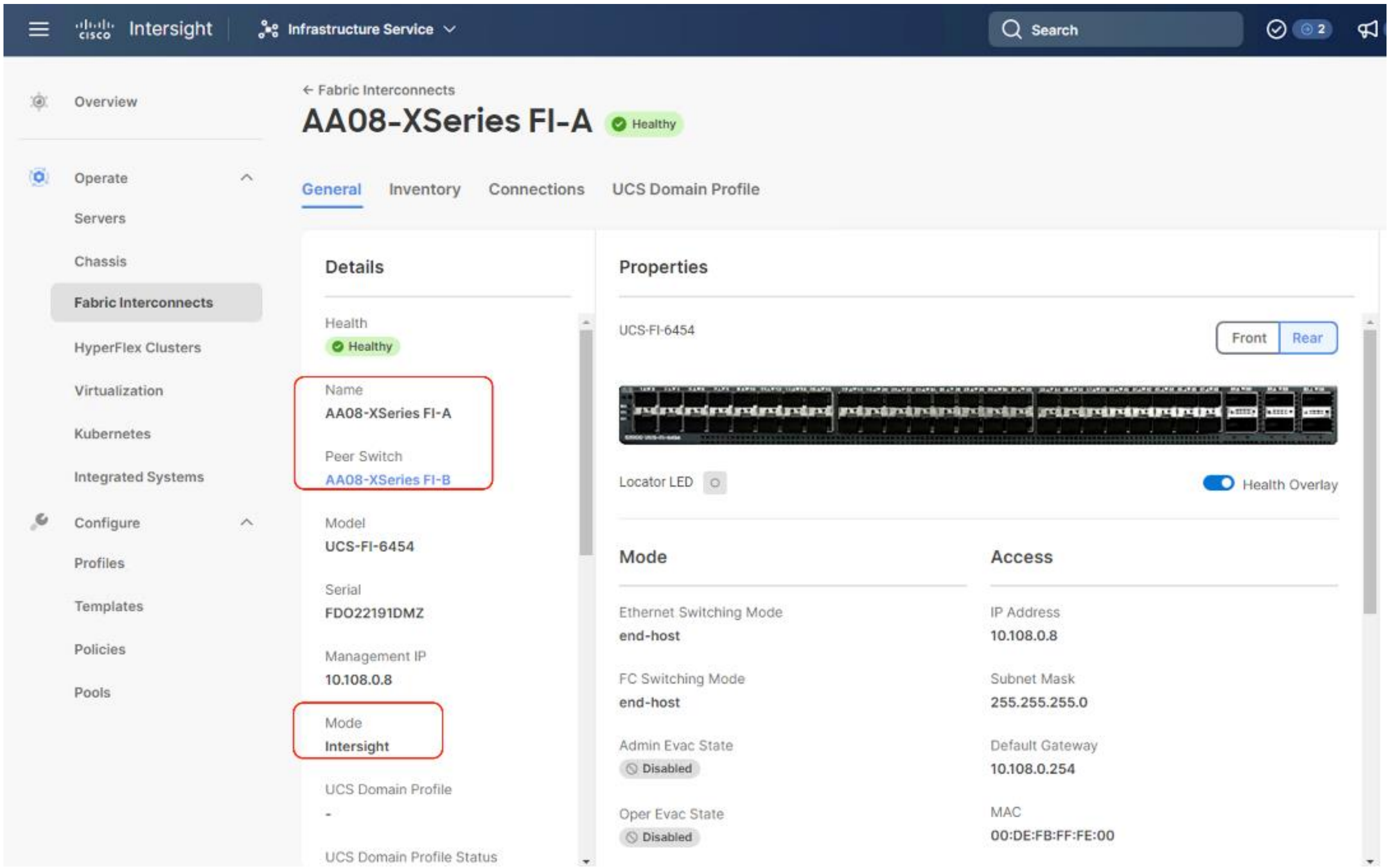
Bundle Version: 4 — 4.2(1i)A 2, 4.2(2a) 2

NX-OS Version: 6 — 5.0(3)N2(4.21g) 2, 9.3(5)I42(2a) 2, 9.3(5)I42(1f) 2

Models: 6

Name	Health	Contract Status	Management...	Model	Expansion M...	B.	UCS Domain Profile	N.	Tota
AA08-FI6332 FI-A	Critical	Not Covered	10.108.0.11	UCS-FI-6332-16UP	0	4.2(1...		5.0(...	40
AA08-FI6332 FI-B	Healthy	Not Covered	10.108.0.12	UCS-FI-6332-16UP	0	4.2(1...		5.0(...	40
AA08-XSeries FI-A	Healthy	Not Covered	10.108.0.8	UCS-FI-6454	N/A			9.3(...	54
AA08-XSeries FI-B	Healthy	Not Covered	10.108.0.9	UCS-FI-6454	N/A			9.3(...	54

Step 4. You can verify whether a Cisco UCS fabric interconnect is in Cisco UCS Manager Managed Mode or Cisco Intersight managed mode by clicking the fabric interconnect name and looking at the detailed information screen for the fabric interconnect, as shown below:



AA08-XSeries FI-A Healthy

Details

Health: Healthy

Name: AA08-XSeries FI-A

Peer Switch: AA08-XSeries FI-B

Model: UCS-FI-6454

Serial: FDO22191DMZ

Management IP: 10.108.0.8

Mode: Intersight

UCS Domain Profile: -

UCS Domain Profile Status

Properties

UCS-FI-6454

Mode

Ethernet Switching Mode: end-host

FC Switching Mode: end-host

Admin Evac State: Disabled

Oper Evac State: Disabled

Access

IP Address: 10.108.0.8

Subnet Mask: 255.255.255.0

Default Gateway: 10.108.0.254

MAC: 00:DE:FB:FF:FE:00

Procedure 5. Upgrade Fabric Interconnect Firmware using Cisco Intersight

Note: If your Cisco UCS 6454 Fabric Interconnects are not already running firmware release 4.2(2c), upgrade them to 4.2(2c) or to the recommended release.

Note: If Cisco UCS Fabric Interconnects were upgraded to the latest recommended software using Cisco UCS Manager, this upgrade process through Intersight will still work and will copy the Cisco UCS X-Series firmware to the Fabric Interconnects.

Step 1. Log into the Cisco Intersight portal.

Step 2. From the drop-down list, select Infrastructure Service and then select Fabric Interconnects under Operate.

Step 3. Click the ellipses "…"for either of the Fabric Interconnects and select Upgrade Firmware.

Step 4. Click Start.

Step 5. Verify the Fabric Interconnect information and click Next.

Step 6. Select 4.2(3d) release (or the latest release which has the 'Recommended' icon) from the list and click Next.

Step 7. Verify the information and click Upgrade to start the upgrade process.

Step 8. Watch the Request panel of the main Intersight screen as the system will ask for user permission before upgrading each FI. Click the Circle with Arrow and follow the prompts on screen to grant permission.

Step 9. Wait for both the FIs to successfully upgrade.

Setup Domain Profile

A Cisco UCS domain profile configures a fabric interconnect pair through reusable policies, allows configuration of the ports and port channels, and configures the VLANs and VSANs in the network. It defines the characteristics of and configured ports on fabric interconnects. The domain-related policies can be attached to the profile either at the time of creation or later. One Cisco UCS domain profile can be assigned to one fabric interconnect domain.

Some of the characteristics of the Cisco UCS domain profile in the for Cohesity Helios environment include:

- A single domain profile is created for the pair of Cisco UCS fabric interconnects.
- Unique port policies are defined for the two fabric interconnects.
- The VLAN configuration policy is common to the fabric interconnect pair because both fabric interconnects are configured for the same set of VLANs.
- The Network Time Protocol (NTP), network connectivity, and system Quality-of-Service (QoS) policies are common to the fabric interconnect pair.

Next, you need to create a Cisco UCS domain profile to configure the fabric interconnect ports and discover connected chassis. A domain profile is composed of several policies. Table 14 lists the policies required for the solution described in this document.

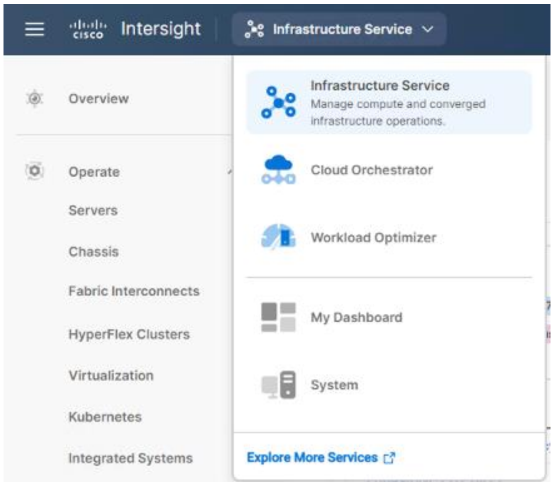
Table 14. Policies required for a Cisco UCS Domain Profile

Policy	Description
VLAN and VSAN Policy	Network connectivity
Port configuration policy for fabric A	Definition of Server Ports, FC ports and uplink ports channels
Port configuration policy for fabric B	Definition of Server Ports, FC ports and uplink ports channels
Network Time Protocol (NTP) policy	

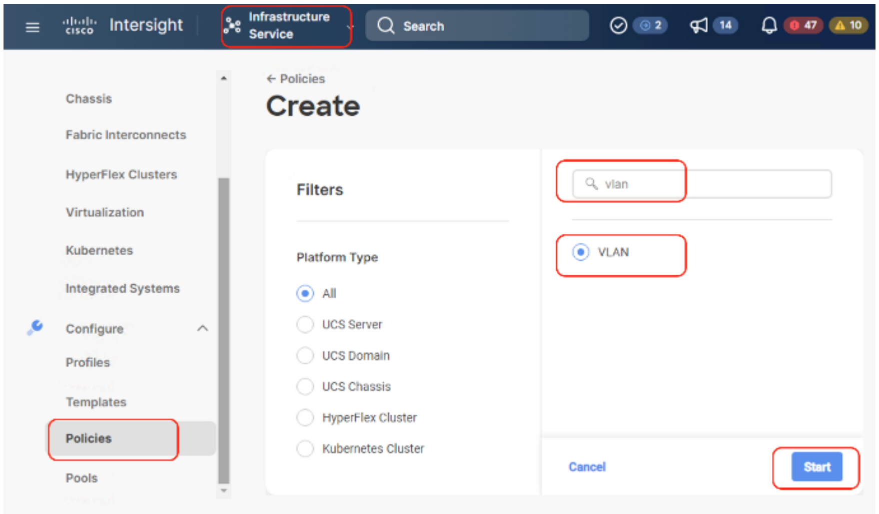
Policy	Description
Syslog policy	
System QoS	

Procedure 1. Create VLAN configuration Policy

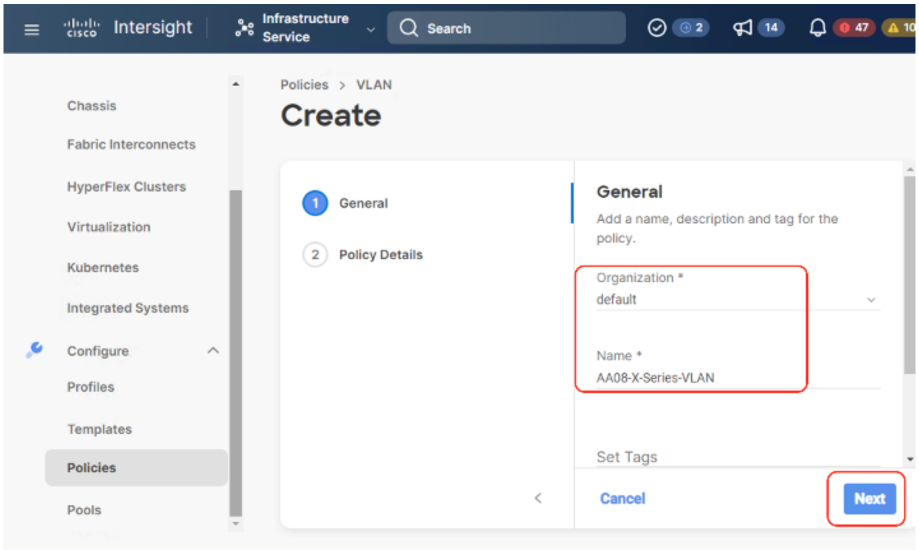
Step 1. Select Infrastructure Services.



Step 2. Under Policies, select Create Policy, then select VLAN and click Start.



Step 3. Provide a name for the VLAN (for example, AA08-XSeries-VLAN) and click Next.



General

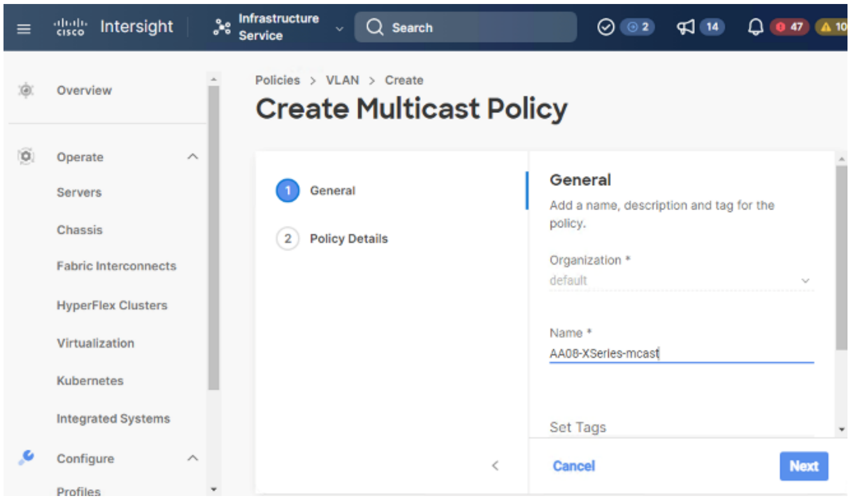
Add a name, description and tag for the policy.

Organization * default

Name * AA08-X-Series-VLAN

Step 4. Click Add VLANs to add your required VLANs.

Step 5. Click Multicast Policy to add or create a multicast policy with default settings for your VLAN policy as show below:

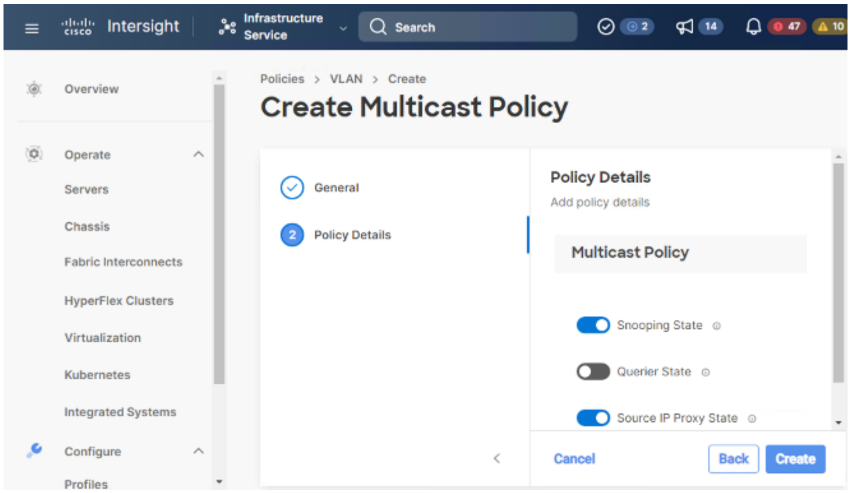


General

Add a name, description and tag for the policy.

Organization * default

Name * AA08-XSeries-mcast



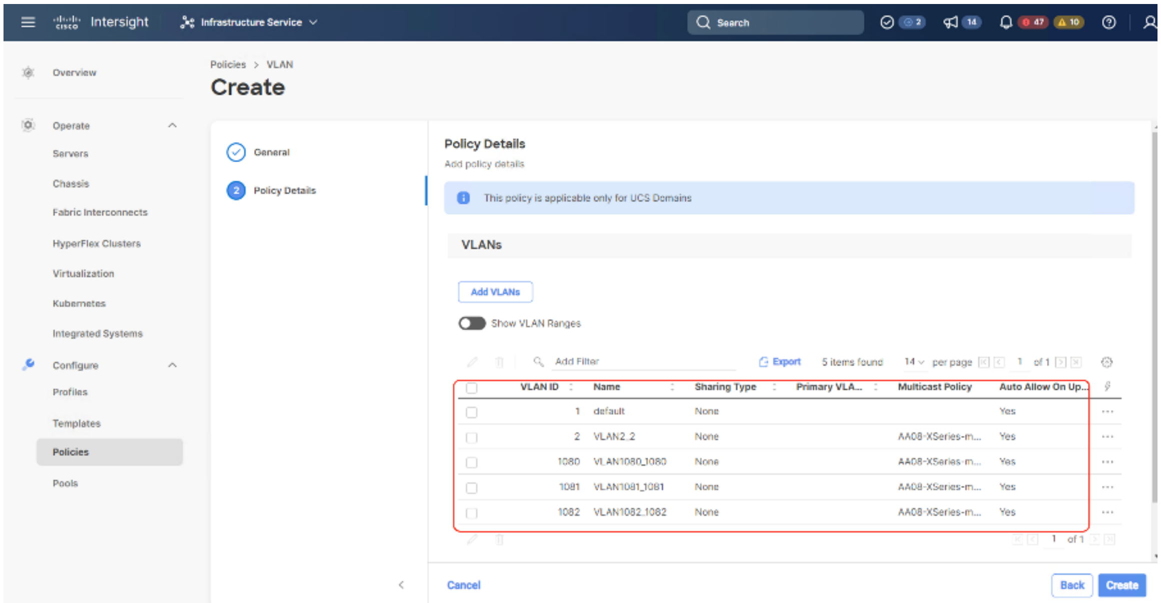
Policy Details

Add policy details

Multicast Policy

- Snooping State: on
- Querier State: off
- Source IP Proxy State: on

Step 6. Add additional VLANs as required in the network setup and click Create.



Policy Details

Add policy details

This policy is applicable only for UCS Domains

VLANs

Add VLANs

Show VLAN Ranges

Add Filter Export 5 items found 14 per page 1 of 1

VLAN ID	Name	Sharing Type	Primary VLA...	Multicast Policy	Auto Allow On Up...
1	default	None			Yes
2	VLAN2_2	None		AA08-XSeries-m...	Yes
1080	VLAN1080_1080	None		AA08-XSeries-m...	Yes
1081	VLAN1081_1081	None		AA08-XSeries-m...	Yes
1082	VLAN1082_1082	None		AA08-XSeries-m...	Yes

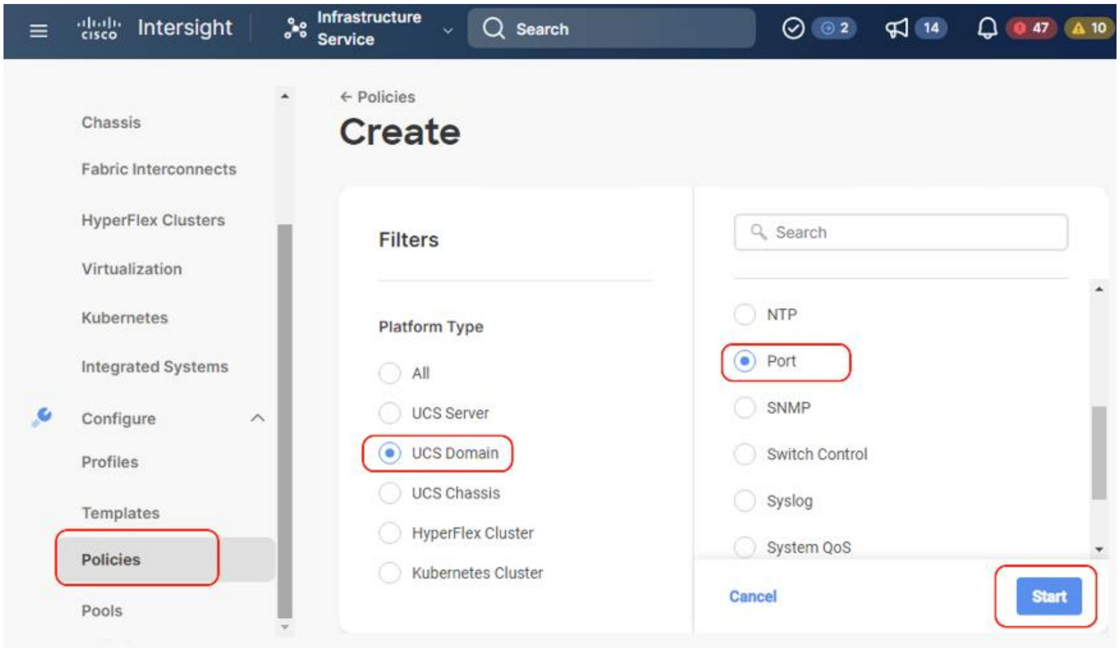
Note: If you will be using the same VLANs on fabric interconnect A and fabric interconnect B, you can use the same policy for both.

Note: In the event any of the VLANs are marked native on the uplink Cisco Nexus switch, ensure to mark that VLAN native during VLAN Policy creation. This will avoid any syslog errors.

Procedure 2. Create Port Configuration Policy

Note: This policy has to be created for each of the fabric interconnects.

Step 1. Under Policies, for the platform type, select UCS Domain, then select Port and click Start.

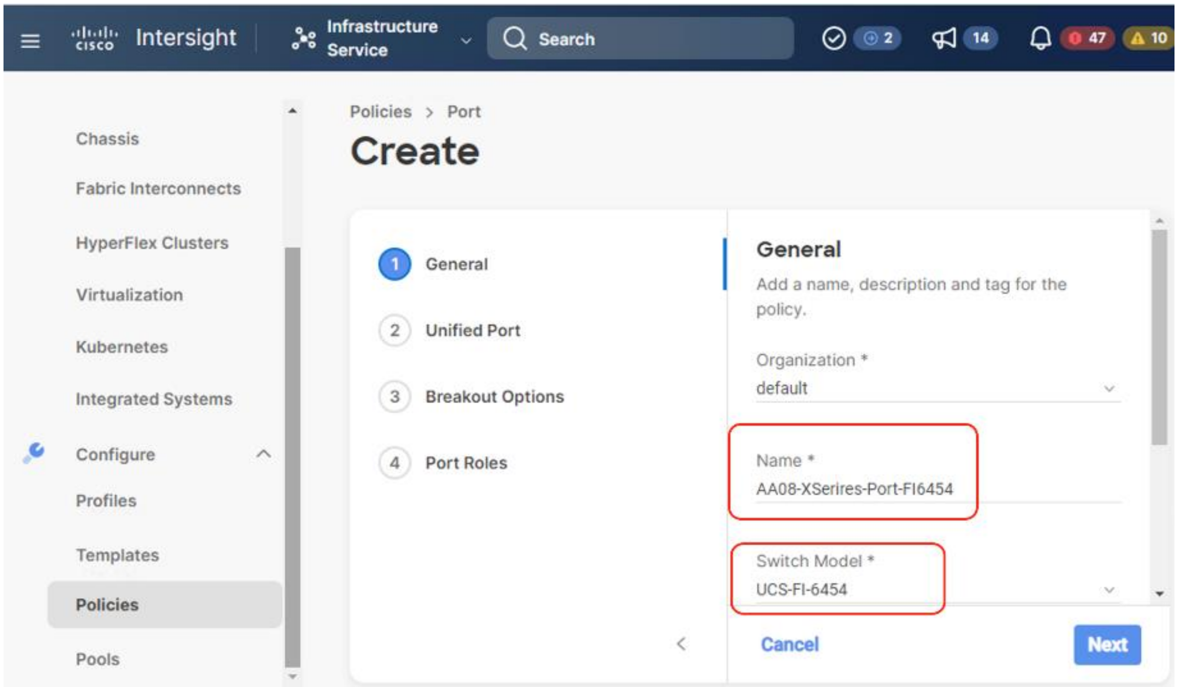


Platform Type

○ All
○ UCS Server
● UCS Domain
○ UCS Chassis
○ HyperFlex Cluster
○ Kubernetes Cluster

○ NTP
● Port
○ SNMP
○ Switch Control
○ Syslog
○ System QoS

Step 2. Provide a name for the port policy, select the Switch Model (present configuration is deployed with FI 6454) and click Next.



Policies > Port

Create

1 General
2 Unified Port
3 Breakout Options
4 Port Roles

General

Add a name, description and tag for the policy.

Organization *
default

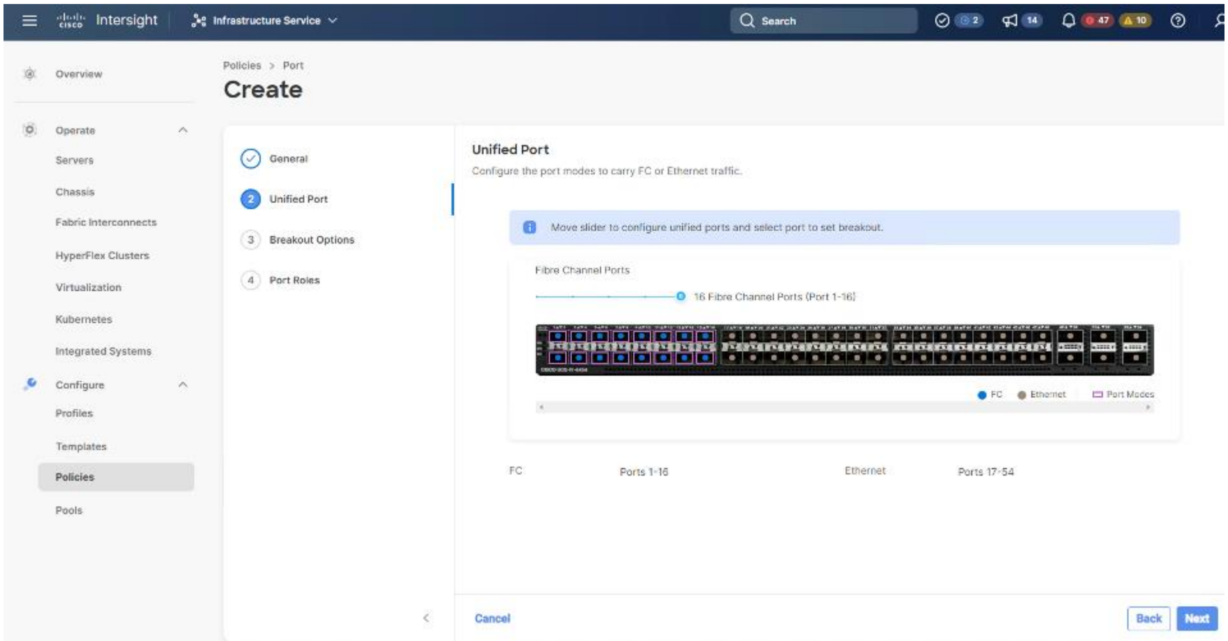
Name *
AA08-XSerires-Port-FI6454

Switch Model *
UCS-FI-6454

Step 3. Click Next. Define the port roles; server ports for chassis and server connections, Fibre Channel ports for SAN connections, or network uplink ports.

Step 4. If you need Fibre Channel, use the slider to define Fibre Channel ports.

Step 5. Select ports 1 through 16 and click Next, this creates ports 1-16 as type FC with Role as unconfigured. When you need Fibre Channel connectivity, these ports can be configured with FC Uplink/Storage ports.



Policies > Port

Create

General
2 Unified Port
3 Breakout Options
4 Port Roles

Unified Port

Configure the port modes to carry FC or Ethernet traffic.

Move slider to configure unified ports and select port to set breakout.

Fibre Channel Ports

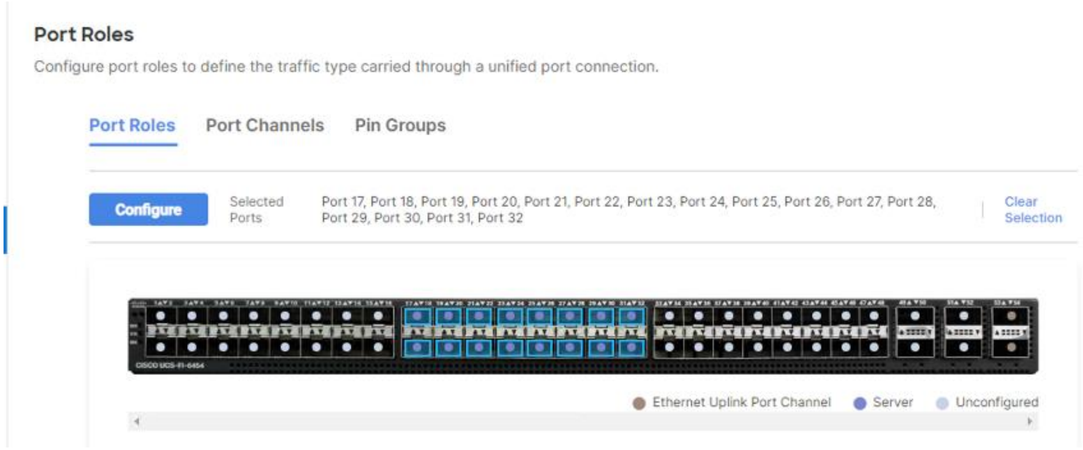
16 Fibre Channel Ports (Port 1-16)

FC Ports 1-16 Ethernet Ports 17-54

Step 6. Click Next.

Step 7. If required, configure the FC or Ethernet breakout ports, and click Next. In this configuration, no breakout ports were configured. Click Next.

Step 8. To configure server ports, select the ports that have chassis or rack-mounted servers plugged into them and click Configure.

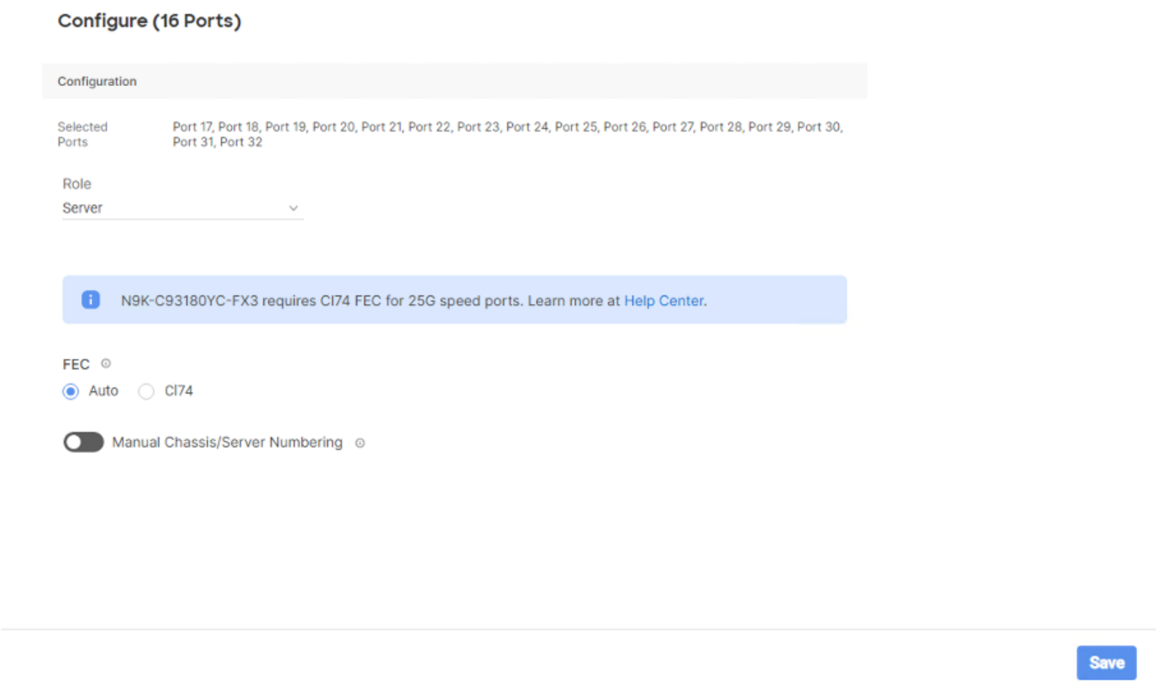


Port Roles

Configure port roles to define the traffic type carried through a unified port connection.

Selected Ports: Port 17, Port 18, Port 19, Port 20, Port 21, Port 22, Port 23, Port 24, Port 25, Port 26, Port 27, Port 28, Port 29, Port 30, Port 31, Port 32

Step 9. From the drop-down list, select Server and click Save.



Configure (16 Ports)

Configuration

Selected Ports: Port 17, Port 18, Port 19, Port 20, Port 21, Port 22, Port 23, Port 24, Port 25, Port 26, Port 27, Port 28, Port 29, Port 30, Port 31, Port 32

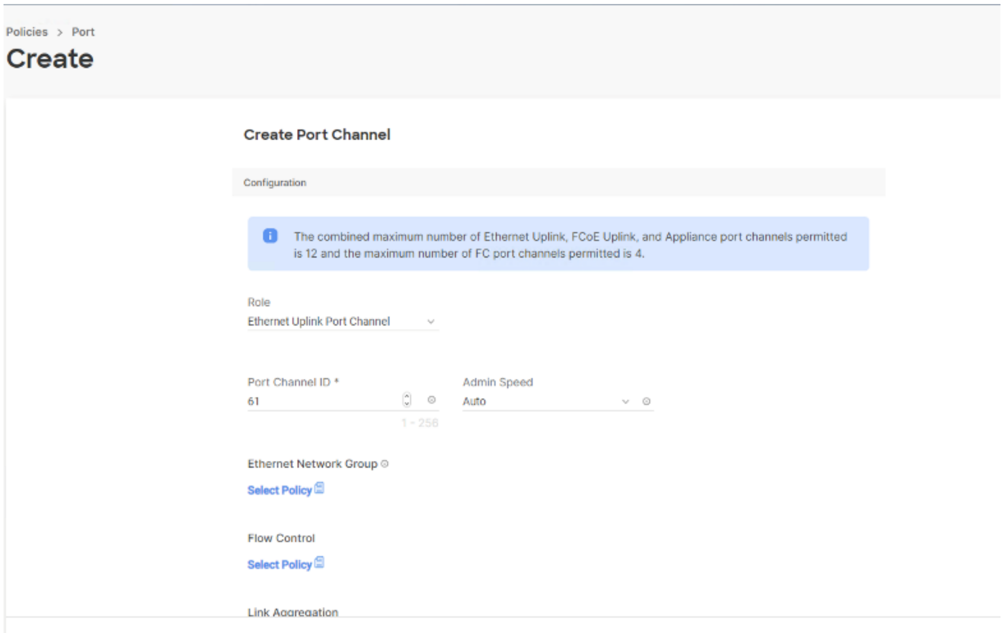
Role: Server

N9K-C93180YC-FX3 requires Cl74 FEC for 25G speed ports. Learn more at Help Center.

FEC: ● Auto ○ Cl74

Manual Chassis/Server Numbering

Step 10. Configure the uplink ports as per your deployment configuration. In this setup, port 53/54 are configured as uplink ports. Select the Port Channel tab and configure the port channel as per the network configuration. In this setup, port 53/54 are port channeled and provide uplink connectivity to the Cisco Nexus switch.



Policies > Port

Create

Create Port Channel

Configuration

The combined maximum number of Ethernet Uplink, FCoE Uplink, and Appliance port channels permitted is 12 and the maximum number of FC port channels permitted is 4.

Role: Ethernet Uplink Port Channel

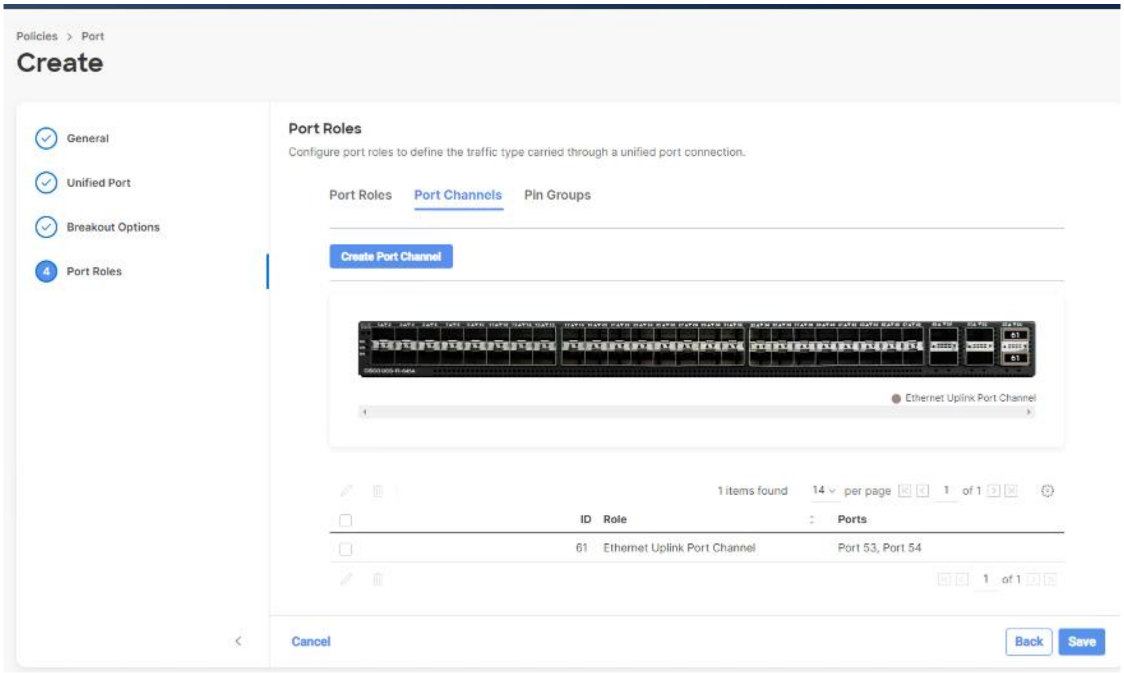
Port Channel ID *: 61 (1 - 256)

Admin Speed: Auto

Ethernet Network Group: Select Policy

Flow Control: Select Policy

Link Aggregation



Policies > Port

Create

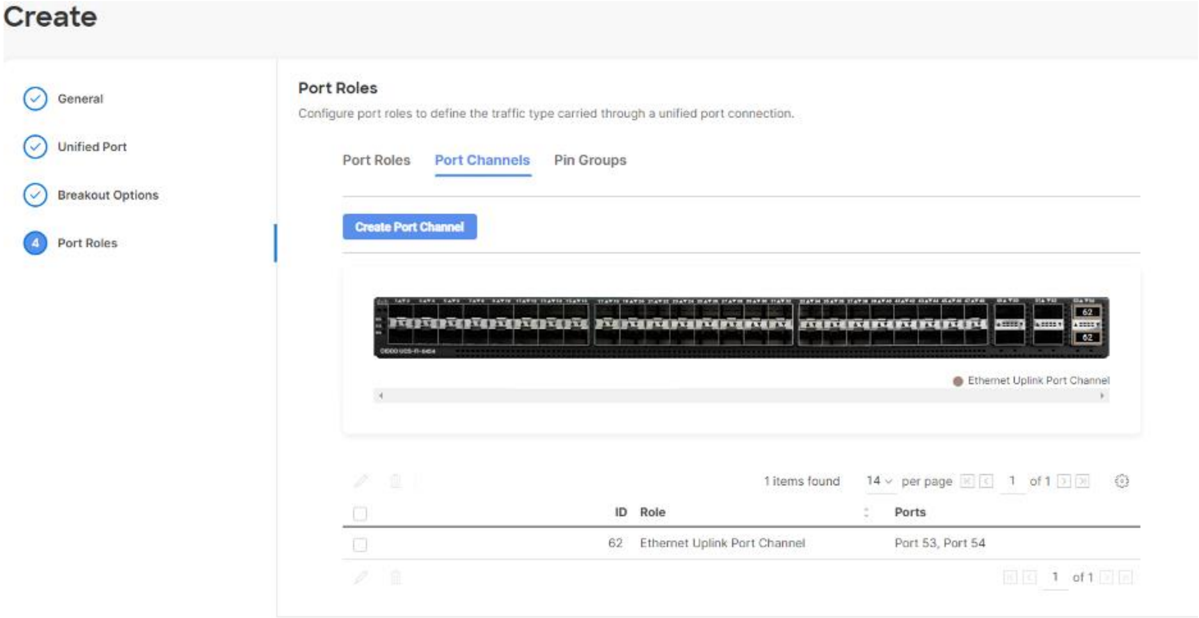
Port Roles

Configure port roles to define the traffic type carried through a unified port connection.

1 items found 14 per page 1 of 1

ID	Role	Ports
61	Ethernet Uplink Port Channel	Port 53, Port 54

Step 11. Repeat this procedure to create a port policy for Fabric Interconnect B. Configure the port channel ID for Fabric B as per the network configuration. In this setup, the port channel ID 62 is created for Fabric Interconnect B, as shown below:



Create

- General
- Unified Port
- Breakout Options
- 4 Port Roles

Port Roles

Configure port roles to define the traffic type carried through a unified port connection.

Port Roles | Port Channels | Pin Groups

Create Port Channel

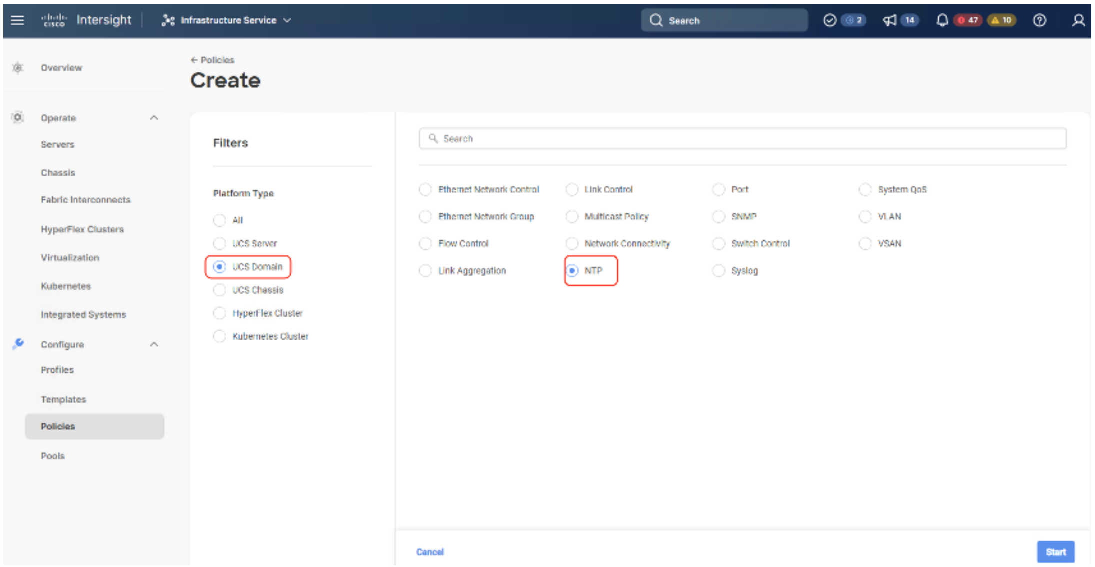
● Ethernet Uplink Port Channel

1 items found 14 per page 1 of 1

ID	Role	Ports
62	Ethernet Uplink Port Channel	Port 53, Port 54

Procedure 3. Create NTP Policy

Step 1. Under Policies, select Create Policy, then select UCS Domain and then select NTP. Click Start.



Create

Filters

Platform Type

○ All
○ UCS Server
● UCS Domain
○ UCS Chassis
○ HyperFlex Cluster
○ Kubernetes Cluster

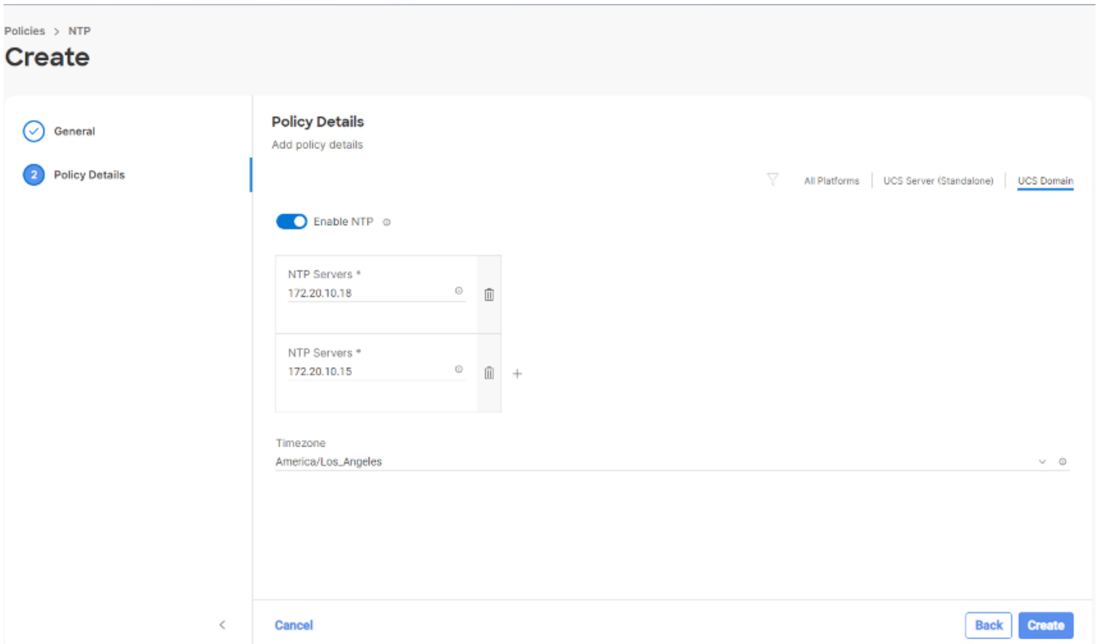
Search

○ Ethernet Network Control	○ Link Control	○ Port	○ System QoS
○ Ethernet Network Group	○ Multicast Policy	○ SNMP	○ VLAN
○ Flow Control	○ Network Connectivity	○ Switch Control	○ VSAN
○ Link Aggregation	● NTP	○ Syslog	

Step 2. Provide a name for the NTP policy.

Step 3. Click Next.

Step 4. Define the name or IP address for the NTP servers. Define the correct time zone.



Policies > NTP

Create

General

Policy Details

Policy Details

Add policy details

All Platforms | UCS Server (Standalone) | UCS Domain

Enable NTP

NTP Servers *
172.20.10.18

NTP Servers *
172.20.10.15

Timezone
America/Los_Angeles

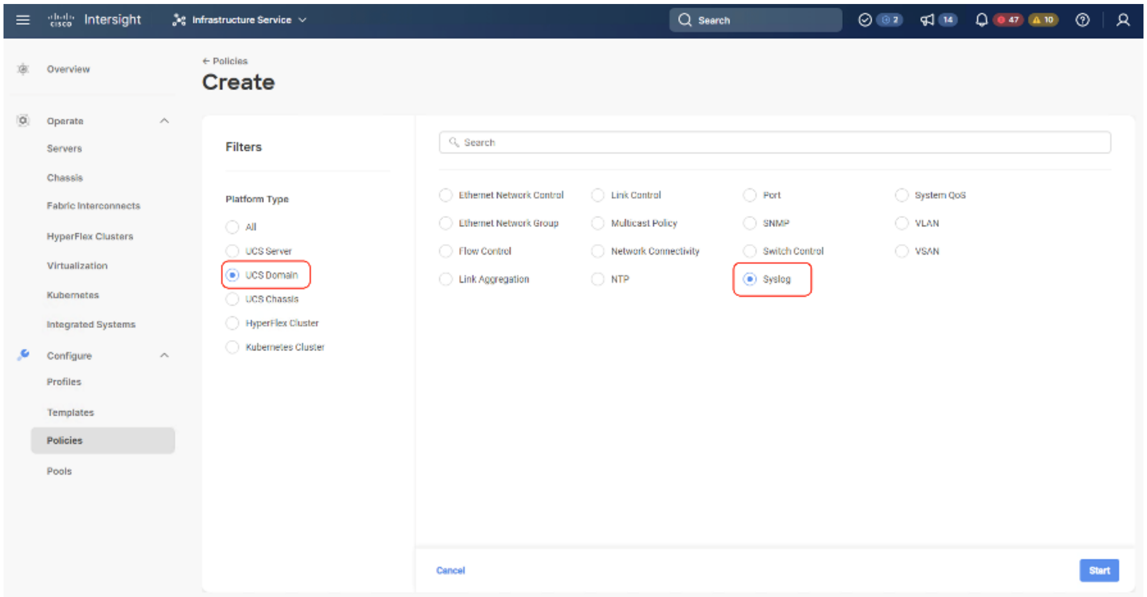
Cancel Back Create

Step 5. Click Create.

Procedure 4. Create syslog Policy

Note: You do not need to enable the syslog server.

Step 1. Under Policies, select Create Policy, then select UCS Domain, and then select syslog. Click Start.



← Policies

Create

Filters

Platform Type

○ All
○ UCS Server
● UCS Domain
○ UCS Chassis
○ HyperFlex Cluster
○ Kubernetes Cluster

Search

○ Ethernet Network Control	○ Link Control	○ Port	○ System QoS
○ Ethernet Network Group	○ Multicast Policy	○ SNMP	○ VLAN
○ Flow Control	○ Network Connectivity	○ Switch Control	○ VSAN
○ Link Aggregation	○ NTP	● Syslog	

Cancel Start

Step 2. Provide a name for the syslog policy.

Step 3. Click Next.

Step 4. Define the syslog severity level that triggers a report.

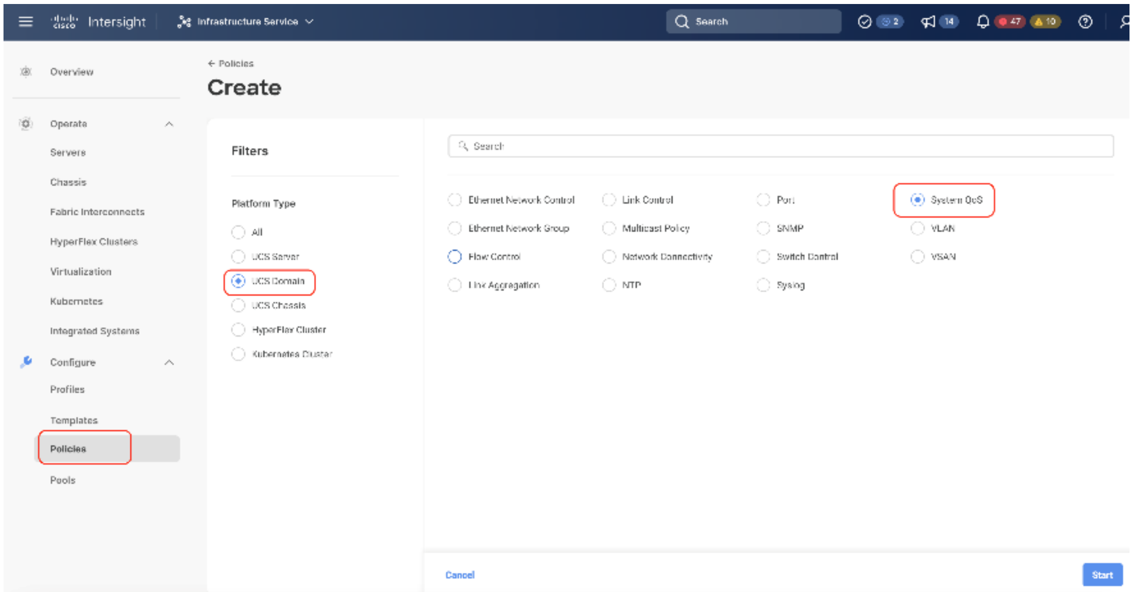
Step 5. Define the name or IP address for the syslog servers.

Step 6. Click Create.

Procedure 5. Create QoS Policy

Note: QoS Policy should be created as per the defined QoS setting on uplink switch. In this Cohesity deployment, no Platinum/Gold/Silver, or Bronze Class of Service (CoS) were defined and thus all the traffic would go through best efforts.

Step 1. Under Policies, select Create Policy, select UCS Domain, then select System QoS. Click Start.



Platform Type

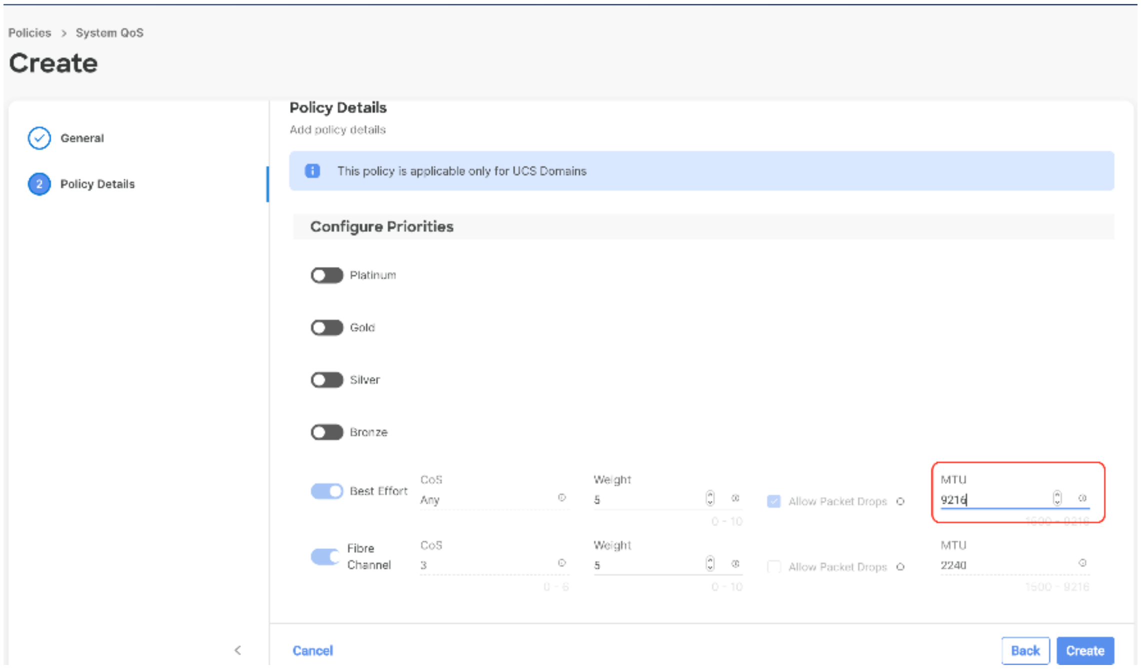
○ All
○ UCS Server
● UCS Domain
○ UCS Chassis
○ HyperFlex Cluster
○ Kubernetes Cluster

○ Ethernet Network Control	○ Link Control	○ Port	● System QoS
○ Ethernet Network Group	○ Multicast Policy	○ SNMP	○ VLAN
○ Flow Control	○ Network Connectivity	○ Switch Control	○ VSAN
○ Link Aggregation	○ NTP	○ Syslog	

Step 2. Provide a name for the System QoS policy.

Step 3. Click Next.

Step 4. In this Cohesity configuration, no Platinum/Gold/Silver, or Bronze Class of Service (CoS) were defined and thus all the traffic would go through best efforts. Change the MTU of best effort to 9216. Click Create.



Policy Details

Add policy details

This policy is applicable only for UCS Domains

Configure Priorities

Platinum

Gold

Silver

Bronze

	CoS	Weight		MTU
Best Effort	Any	5 (0 - 10)	☑ Allow Packet Drops	9216 (1500 - 9216)
Fibre Channel	3 (0 - 6)	5 (0 - 10)	□ Allow Packet Drops	2240 (1500 - 9216)

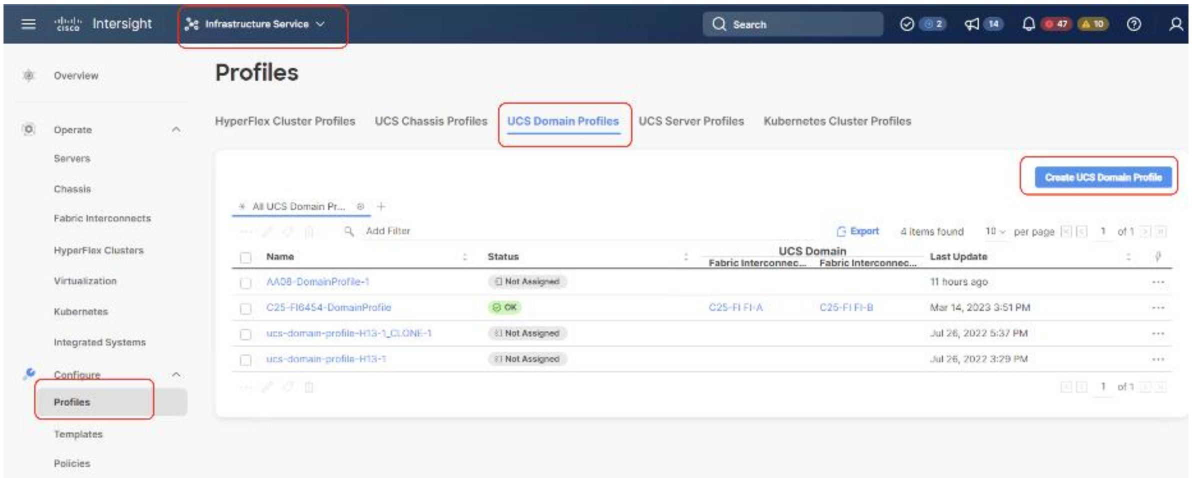
Procedure 6. Create Domain Profile

Note: All the Domain Policies created in this procedure will be attached to a Domain Profile. You can clone the Cisco UCS domain profile to install additional Cisco UCS Systems. When cloning the Cisco UCS domain profile, the new Cisco UCS domains use the existing policies for consistent deployment of additional Cisco Systems at scale.

Step 1. Select the Infrastructure Service option and click Profiles.

Step 2. Select UCS Domain Profiles.

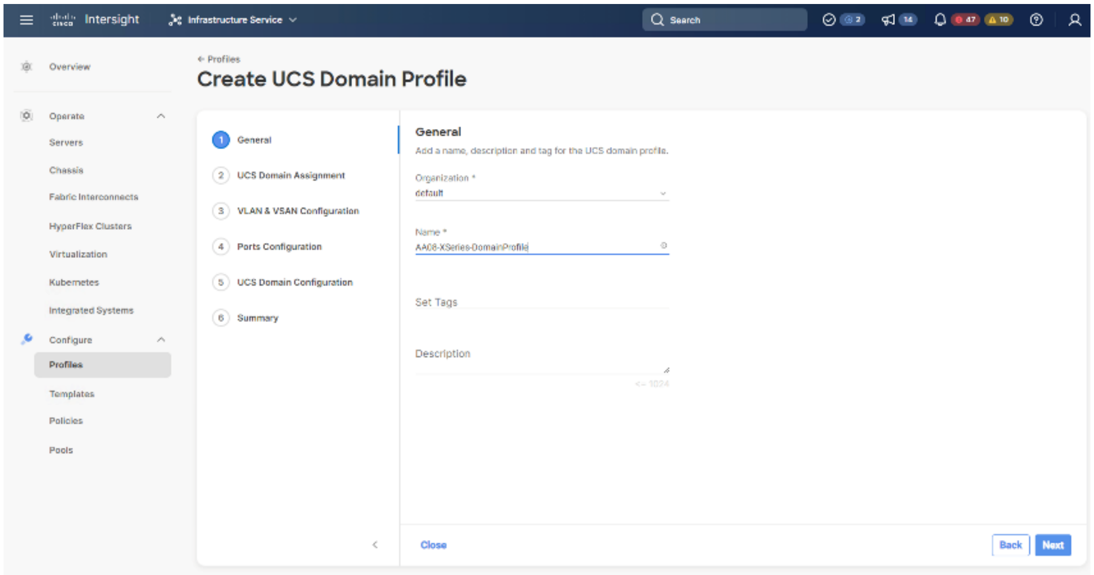
Step 3. Click Create UCS Domain Profile.



Profiles

Name	Status	UCS Domain Fabric Interconnec...	 Fabric Interconnec...	Last Update
AA08-DomainProfile-1	Not Assigned			11 hours ago
C25-FI6454-DomainProfile	OK	C25-FI FI-A	C25-FI FI-B	Mar 14, 2023 3:51 PM
ucs-domain-profile-H13-1_CLONE-1	Not Assigned			Jul 26, 2022 5:37 PM
ucs-domain-profile-H13-1	Not Assigned			Jul 26, 2022 3:29 PM

Step 4. Provide a name for the profile (for example, AA08-XSeries-DomainProfile) and click Next.



Create UCS Domain Profile

General

Add a name, description and tag for the UCS domain profile.

Organization *
default

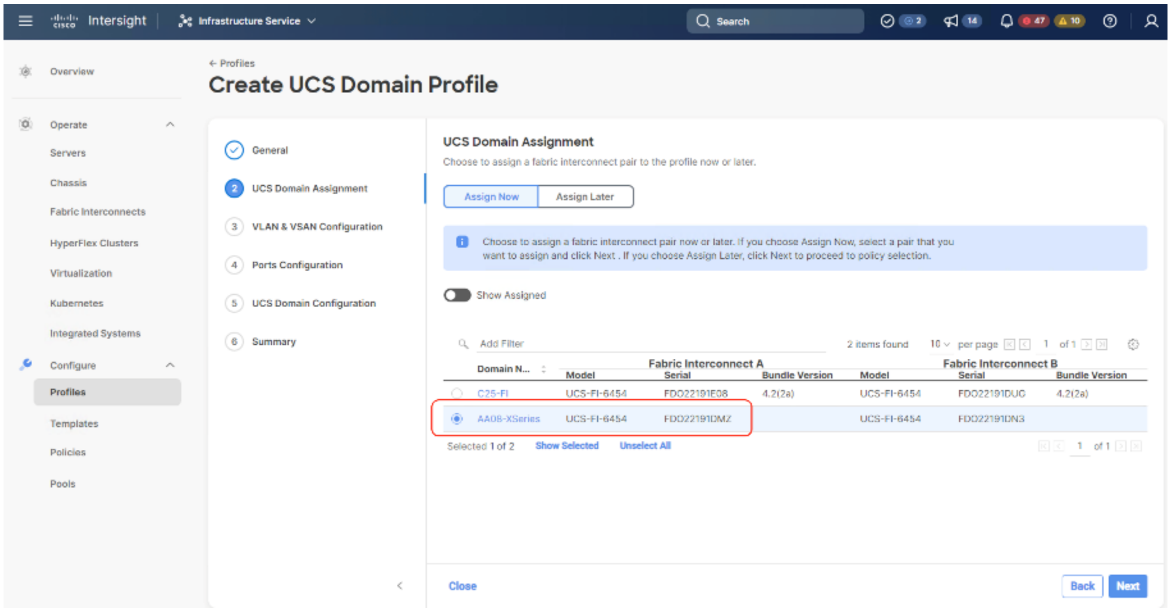
Name *
AA08-XSeries-DomainProfile

Set Tags

Description

<= 1024

Step 5. Select the fabric interconnect domain pair created when you claimed your Fabric Interconnects.



Create UCS Domain Profile

UCS Domain Assignment

Choose to assign a fabric interconnect pair to the profile now or later.

Assign Now | Assign Later

Choose to assign a fabric interconnect pair now or later. If you choose Assign Now, select a pair that you want to assign and click Next . If you choose Assign Later, click Next to proceed to policy selection.

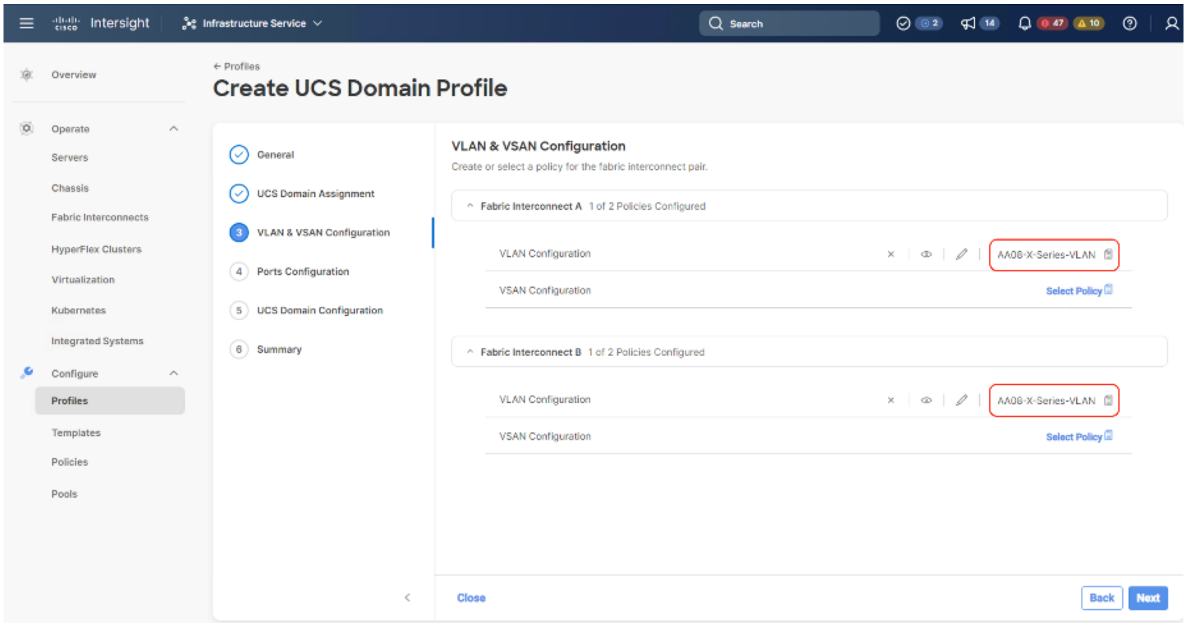
Show Assigned

Add Filter — 2 items found — 10 per page — 1 of 1

	Domain N...	Fabric Interconnect A			Fabric Interconnect B		
		Model	Serial	Bundle Version	Model	Serial	Bundle Version
○	C25-FI	UCS-FI-6454	FDO22191E08	4.2(2a)	UCS-FI-6454	FDO22191DUG	4.2(2a)
●	AA08-XSeries	UCS-FI-6454	FDO22191DMZ		UCS-FI-6454	FDO22191DN3	

Selected 1 of 2 Show Selected Unselect All

Step 6. Under VLAN & VSAN Configuration, click Select Policy to select the policies created earlier. (Be sure that you select the appropriate policy for each side of the fabric.) In this configuration the VLAN policy is same for both the fabric interconnects.



Create UCS Domain Profile

VLAN & VSAN Configuration

Create or select a policy for the fabric interconnect pair.

Fabric Interconnect A 1 of 2 Policies Configured

VLAN Configuration: AA08-X-Series-VLAN

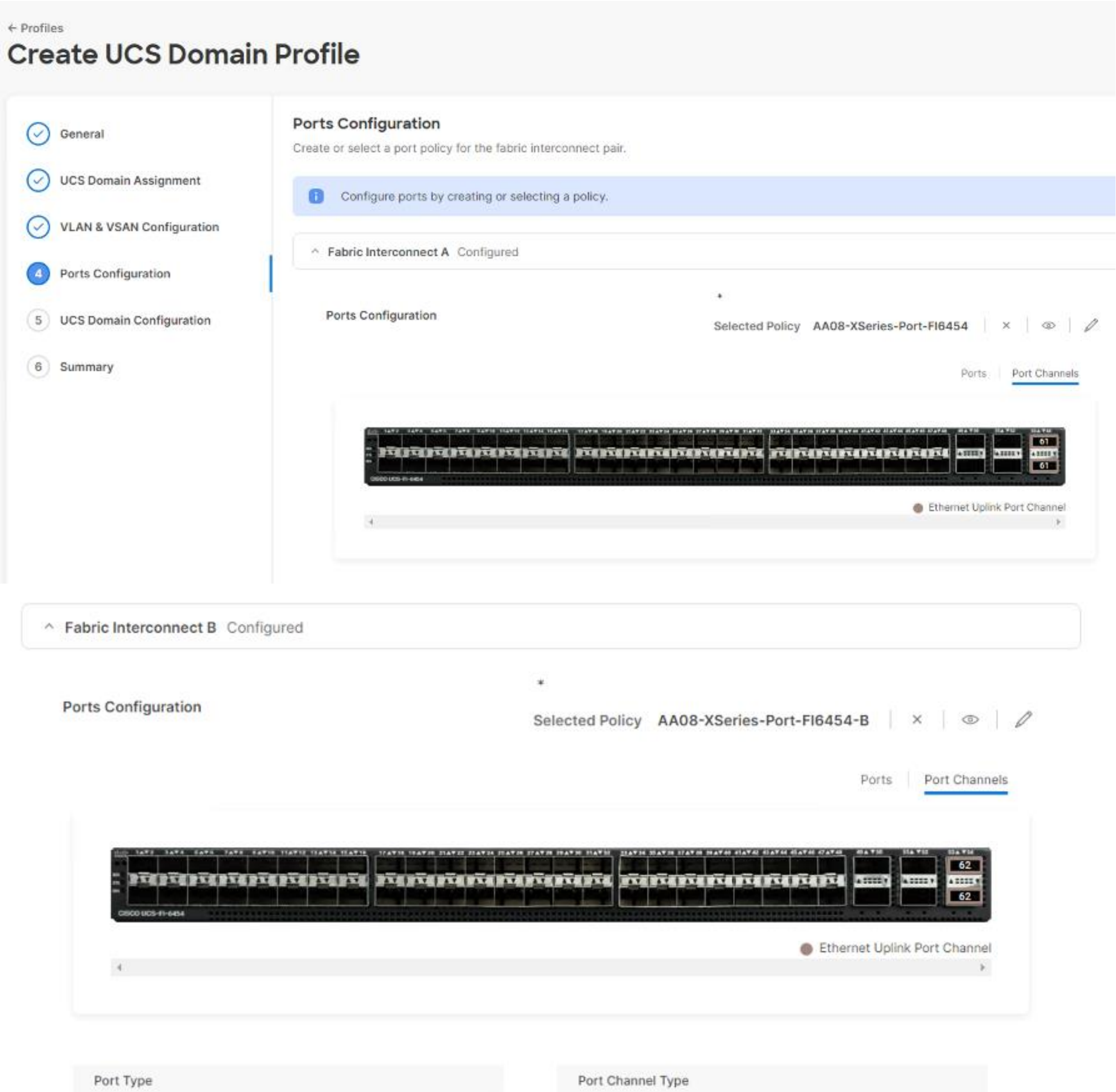
VSAN Configuration: Select Policy

Fabric Interconnect B 1 of 2 Policies Configured

VLAN Configuration: AA08-X-Series-VLAN

VSAN Configuration: Select Policy

Step 7. Under Ports Configuration, select the port configuration policies created earlier. Each fabric has different port configuration policy. In this setup, only the port channel ID is different across both the Port Configuration Policy.



← Profiles

Create UCS Domain Profile

1. General
2. UCS Domain Assignment
3. VLAN & VSAN Configuration
4. Ports Configuration
5. UCS Domain Configuration
6. Summary

Ports Configuration

Create or select a port policy for the fabric interconnect pair.

Configure ports by creating or selecting a policy.

Fabric Interconnect A Configured

Ports Configuration

Selected Policy AA08-XSeries-Port-FI6454

Ports | Port Channels

● Ethernet Uplink Port Channel

Fabric Interconnect B Configured

Ports Configuration

Selected Policy AA08-XSeries-Port-FI6454-B

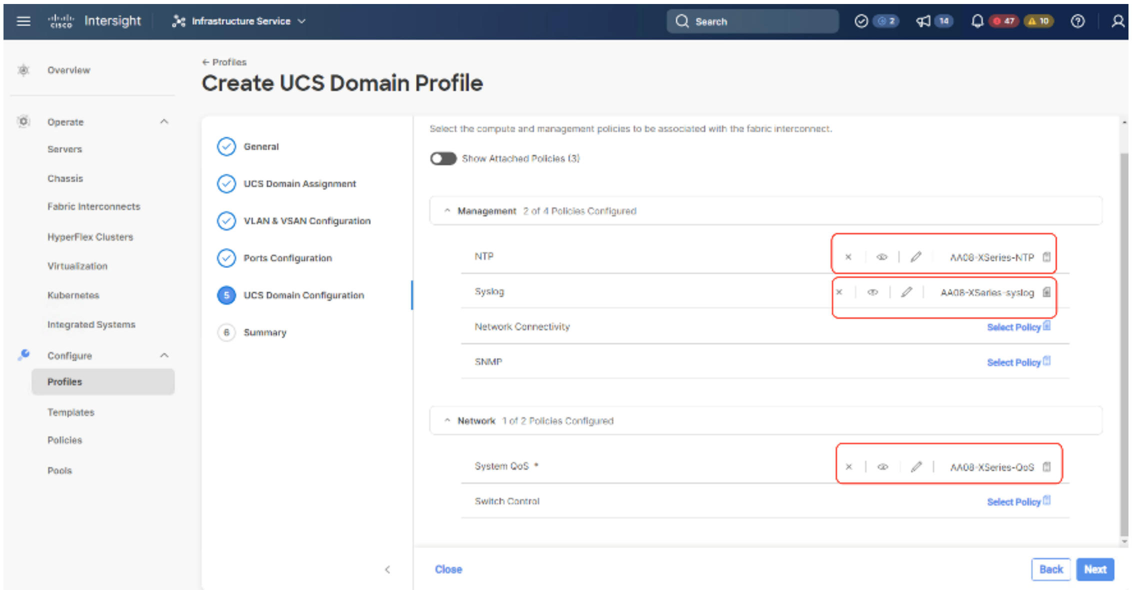
Ports | Port Channels

● Ethernet Uplink Port Channel

Port Type

Port Channel Type

Step 8. Under UCS Domain Configuration, select syslog, System QoS, and the NTP policies you created earlier. Click Next.



Create UCS Domain Profile

Select the compute and management policies to be associated with the fabric interconnect.

Show Attached Policies (3)

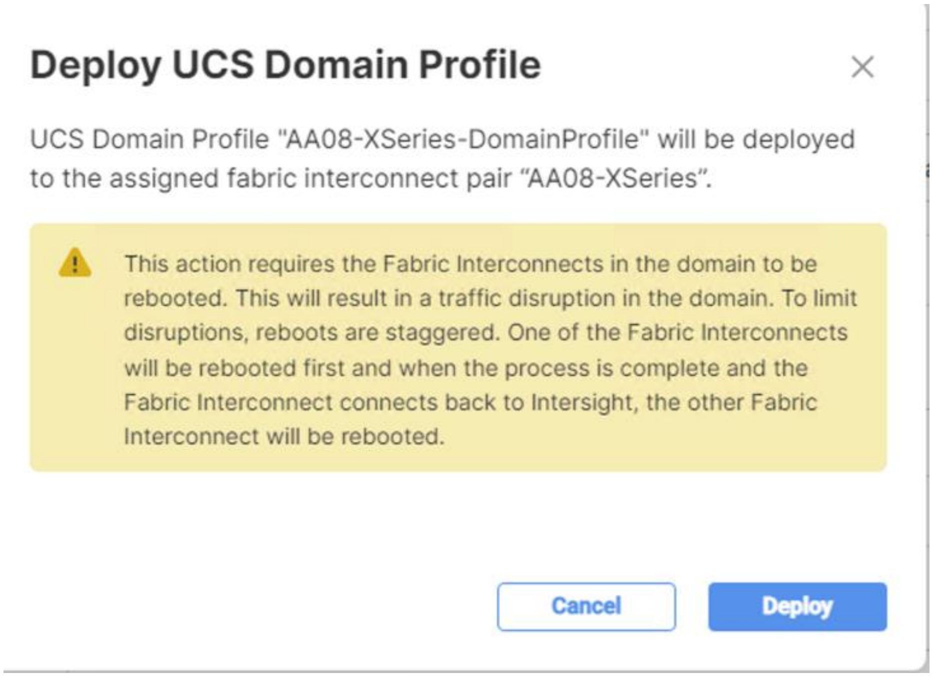
Management 2 of 4 Policies Configured

- NTP: AA08-XSeries-NTP
- Syslog: AA08-XSeries-syslog
- Network Connectivity: Select Policy
- SNMP: Select Policy

Network 1 of 2 Policies Configured

- System QoS *: AA08-XSeries-QoS
- Switch Control: Select Policy

Step 9. Review the Summary and click Deploy. Accept the warning for the Fabric Interconnect reboot and click Deploy.

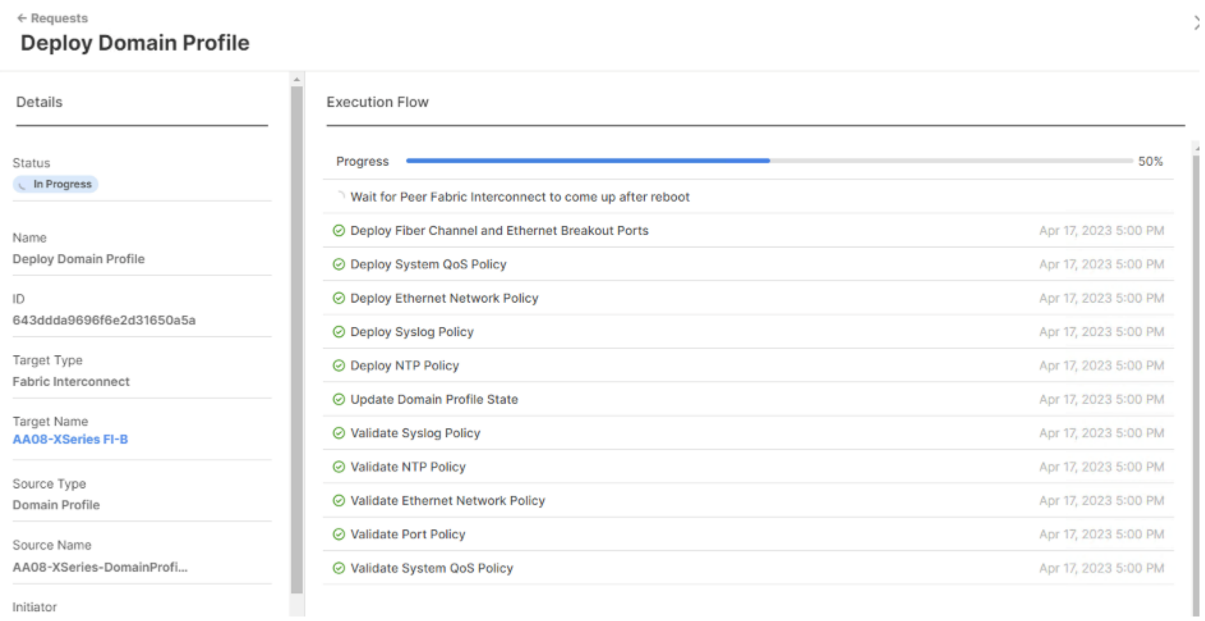


Deploy UCS Domain Profile

UCS Domain Profile "AA08-XSeries-DomainProfile" will be deployed to the assigned fabric interconnect pair "AA08-XSeries".

This action requires the Fabric Interconnects in the domain to be rebooted. This will result in a traffic disruption in the domain. To limit disruptions, reboots are staggered. One of the Fabric Interconnects will be rebooted first and when the process is complete and the Fabric Interconnect connects back to Intersight, the other Fabric Interconnect will be rebooted.

Step 10. Monitor the Domain Profile deployment status and ensure the successful deployment of Domain Profile.



← Requests

Deploy Domain Profile

Details

Status
In Progress

Name
Deploy Domain Profile

ID
643ddda9696f6e2d31650a5a

Target Type
Fabric Interconnect

Target Name
AA08-XSeries FI-B

Source Type
Domain Profile

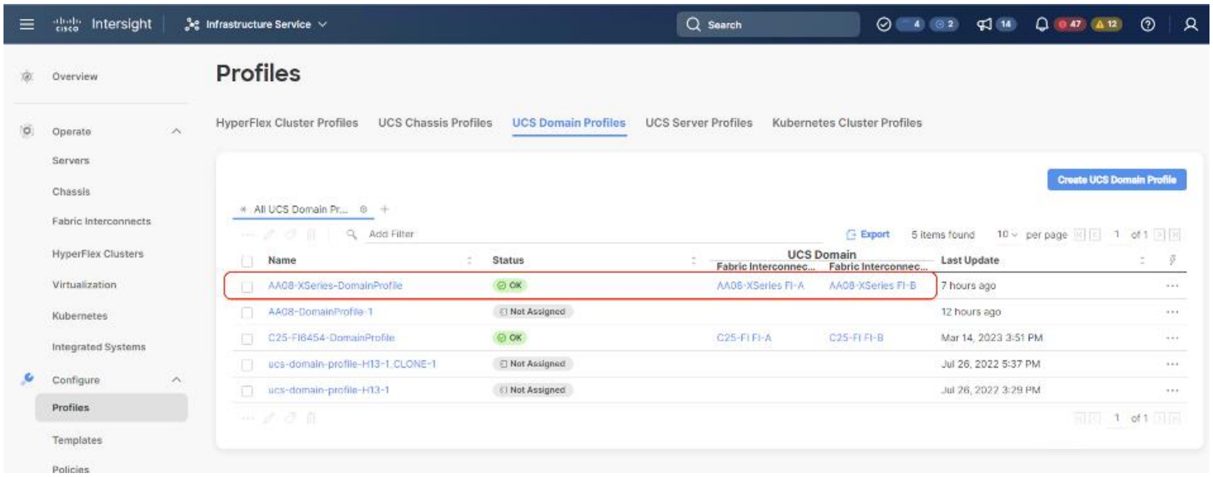
Source Name
AA08-XSeries-DomainProfi...

Initiator

Execution Flow

Progress 50%

Step	Time
Wait for Peer Fabric Interconnect to come up after reboot	
✓ Deploy Fiber Channel and Ethernet Breakout Ports	Apr 17, 2023 5:00 PM
✓ Deploy System QoS Policy	Apr 17, 2023 5:00 PM
✓ Deploy Ethernet Network Policy	Apr 17, 2023 5:00 PM
✓ Deploy Syslog Policy	Apr 17, 2023 5:00 PM
✓ Deploy NTP Policy	Apr 17, 2023 5:00 PM
✓ Update Domain Profile State	Apr 17, 2023 5:00 PM
✓ Validate Syslog Policy	Apr 17, 2023 5:00 PM
✓ Validate NTP Policy	Apr 17, 2023 5:00 PM
✓ Validate Ethernet Network Policy	Apr 17, 2023 5:00 PM
✓ Validate Port Policy	Apr 17, 2023 5:00 PM
✓ Validate System QoS Policy	Apr 17, 2023 5:00 PM



Profiles

HyperFlex Cluster Profiles | UCS Chassis Profiles | UCS Domain Profiles | UCS Server Profiles | Kubernetes Cluster Profiles

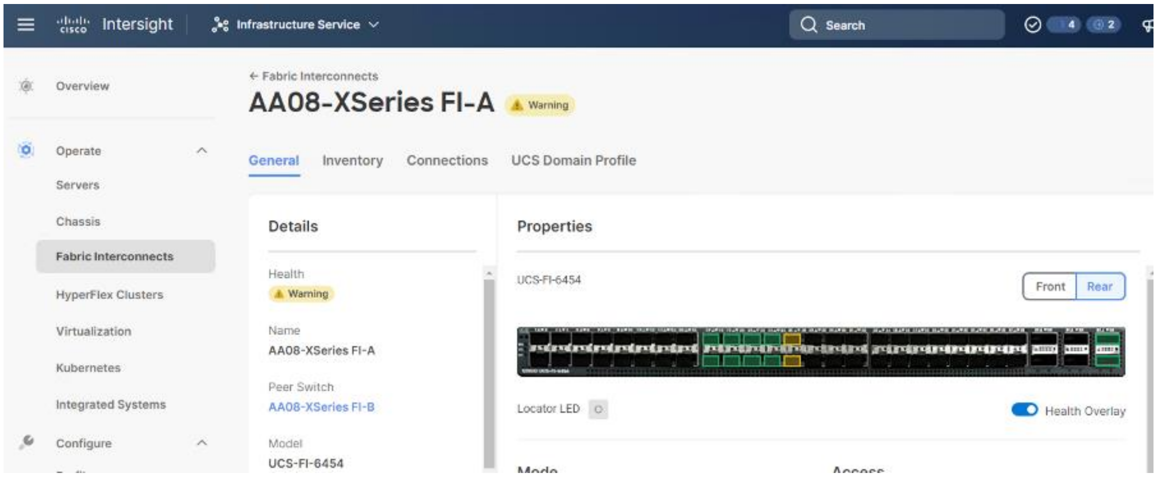
Create UCS Domain Profile

All UCS Domain Pr...

Add Filter | Export | 5 items found | 10 per page | 1 of 1

Name	Status	UCS Domain Fabric Interconnec...	 Fabric Interconnec...	Last Update
AA08-XSeries-DomainProfile	OK	AA08-XSeries FI-A	AA08-XSeries FI-B	7 hours ago
AA08-DomainProfile-1	Not Assigned			12 hours ago
C25-FI6454-DomainProfile	OK	C25-FI FI-A	C25-FI FI-B	Mar 14, 2023 3:51 PM
ucs-domain-profile-H13-1_CLONE-1	Not Assigned			Jul 26, 2022 5:37 PM
ucs-domain-profile-H13-1	Not Assigned			Jul 26, 2022 3:29 PM

Step 11. Verify the uplink and Server ports are online across both Fabric Interconnects.



← Fabric Interconnects

AA08-XSeries FI-A Warning

Details

Health
Warning

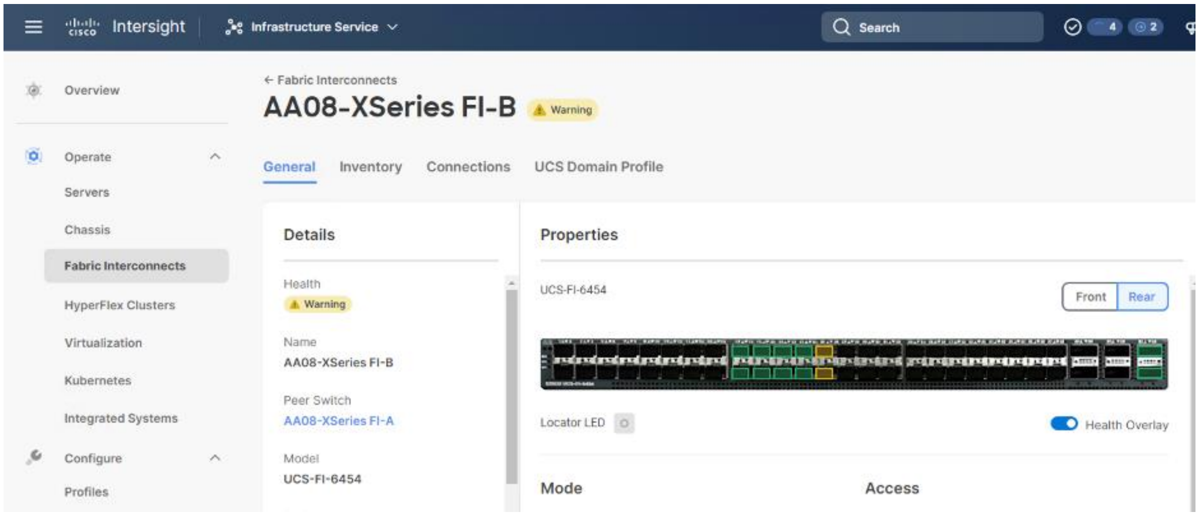
Name
AA08-XSeries FI-A

Peer Switch
AA08-XSeries FI-B

Model
UCS-FI-6454

Properties

UCS-FI-6454



AA08-XSeries FI-B Warning

Details

Health
Warning

Name
AA08-XSeries FI-B

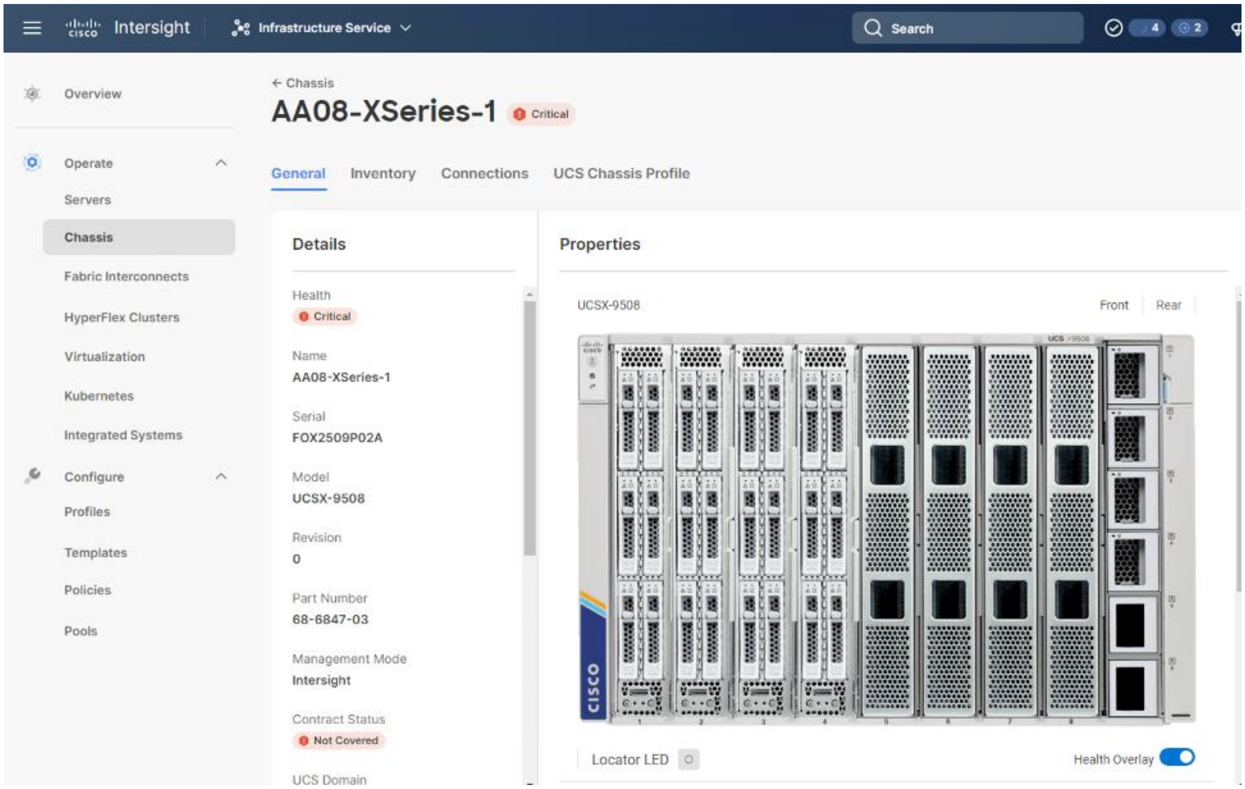
Peer Switch
AA08-XSeries FI-A

Model
UCS-FI-6454

Properties

UCS-FI-6454

The Cisco UCSX-9508 chassis and Cisco UCS X210c M6 compute nodes are automatically discovered after the successful configuration of the ports using the domain profile. The following screenshots show the front and rear views of the Cisco UCSX-9508 chassis, followed by the Cisco UCS X210c M6 compute nodes:



AA08-XSeries-1 Critical

Details

Health
Critical

Name
AA08-XSeries-1

Serial
FOX2509P02A

Model
UCSX-9508

Revision
0

Part Number
68-6847-03

Management Mode
Intersight

Contract Status
Not Covered

UCS Domain

Properties

UCSX-9508

After the Cisco UCS domain profile has been successfully created and deployed, the policies, including the port policies, are pushed to Cisco UCS fabric interconnects.

Setup UCS X9508 Chassis Profile

A Cisco UCS Chassis profile enables you to create and associate chassis policies to an Intersight Managed Mode (IMM) claimed chassis. When a chassis profile is associated with a chassis, Cisco Intersight automatically configures the chassis to match the configurations specified in the policies of the chassis profile. The chassis-related policies can be attached to the profile either at the time of creation or later.

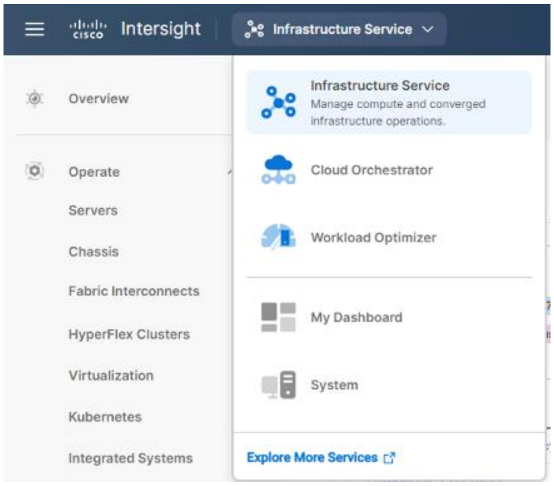
A chassis profile is composed of several policies. Table 15 lists the policies required for the solution described in this document.

Table 15. Policies required for chassis profile

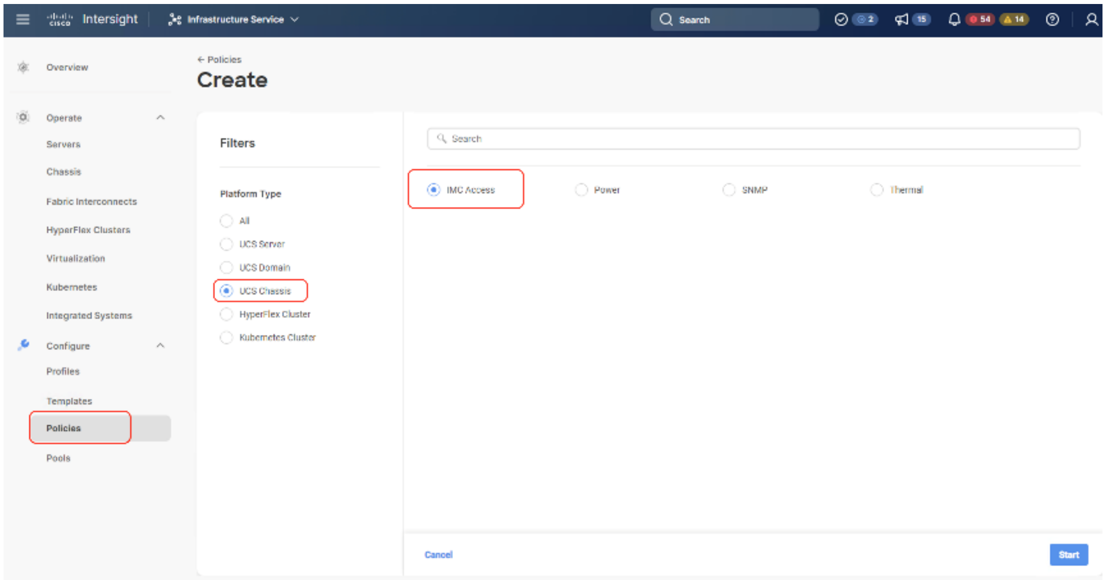
Policy	Description
IMC Access Policy for UCS Chassis	
Power Policy	
Thermal Policy	

Procedure 1. Create IMC Access Policy for UCS Chassis

Step 1. Select Infrastructure Services.

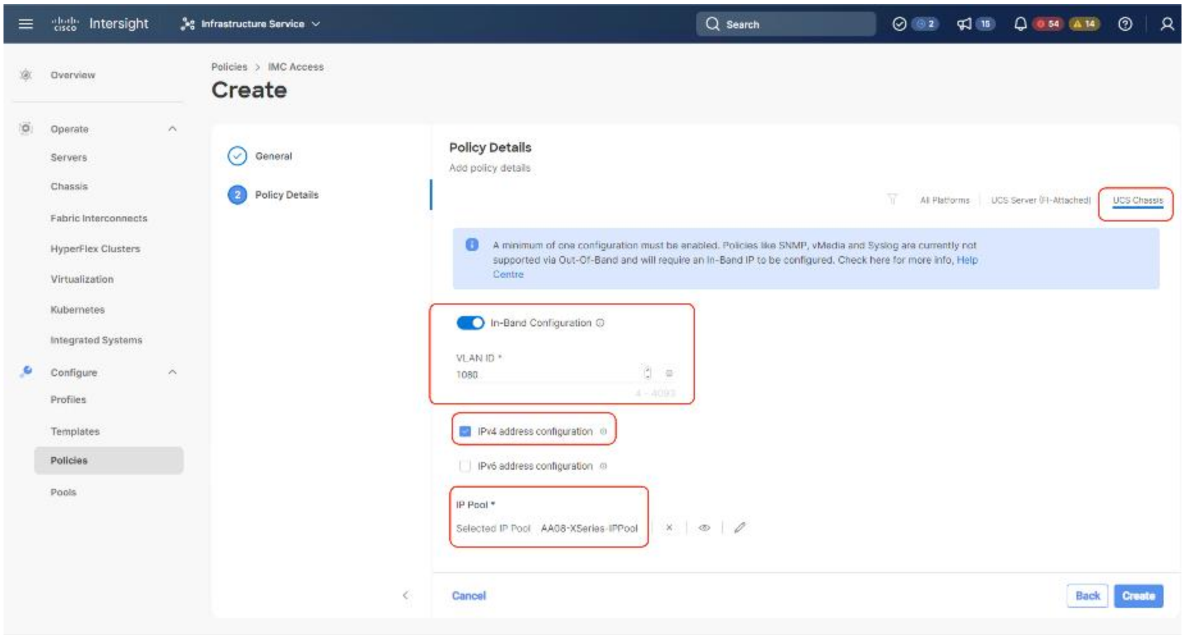


Step 2. Under Policies, select Create Policy. In the platform type select UCS Chassis, then select IMC Access and click Start.



Step 3. Enter a name for Policy (for example, AA08-XSeries-IMC).

Step 4. Select the UCS Chassis tab, define the IN-Band VLAN ID, select IPv4 configuration, and then select IP Pool. Create an IP Pool and click Create.



Policy Details

Add policy details

A minimum of one configuration must be enabled. Policies like SNMP, vMedia and Syslog are currently not supported via Out-Of-Band and will require an In-Band IP to be configured. Check here for more info, Help Centre

In-Band Configuration

VLAN ID * 1080 (4 - 4093)

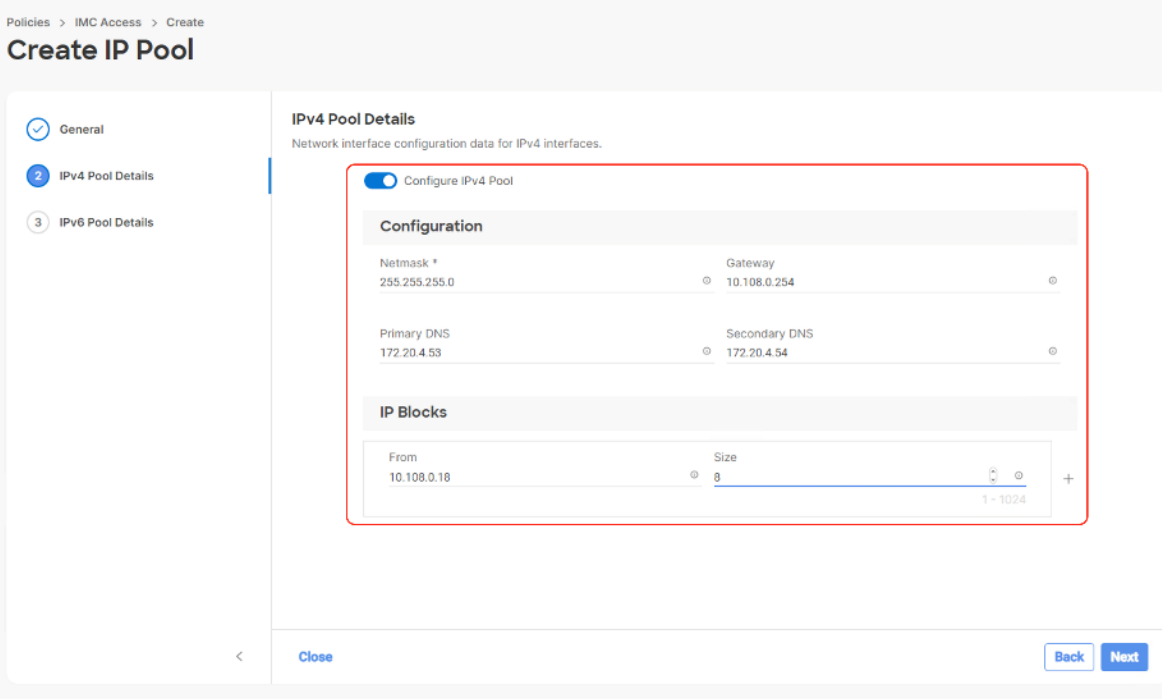
☑ IPv4 address configuration

☐ IPv6 address configuration

IP Pool *

Selected IP Pool AA08-XSeries-IPPool

The IP Pool configuration is detailed below:



IPv4 Pool Details

Network interface configuration data for IPv4 interfaces.

Configure IPv4 Pool

Configuration

Netmask * 255.255.255.0

Gateway 10.108.0.254

Primary DNS 172.20.4.53

Secondary DNS 172.20.4.54

IP Blocks

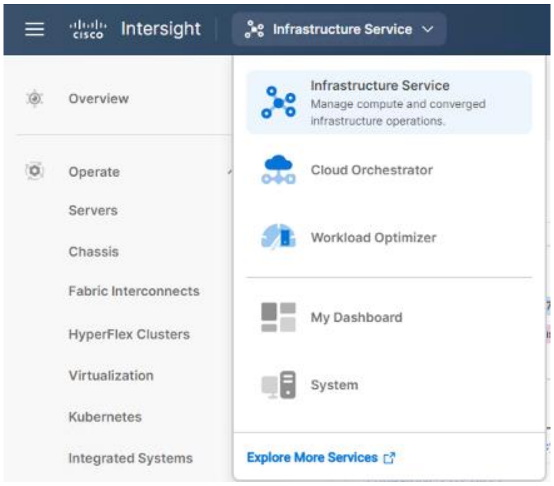
From 10.108.0.18

Size 8 (1 - 1024)

Procedure 2. Create Power Policy for Chassis

Note: If you have a Cohesity deployment with 8x X210c nodes and a Cisco UCS X-Series chassis equipped with 6x 2800w power supplies, it is recommended to have the Power Redundancy as Grid.

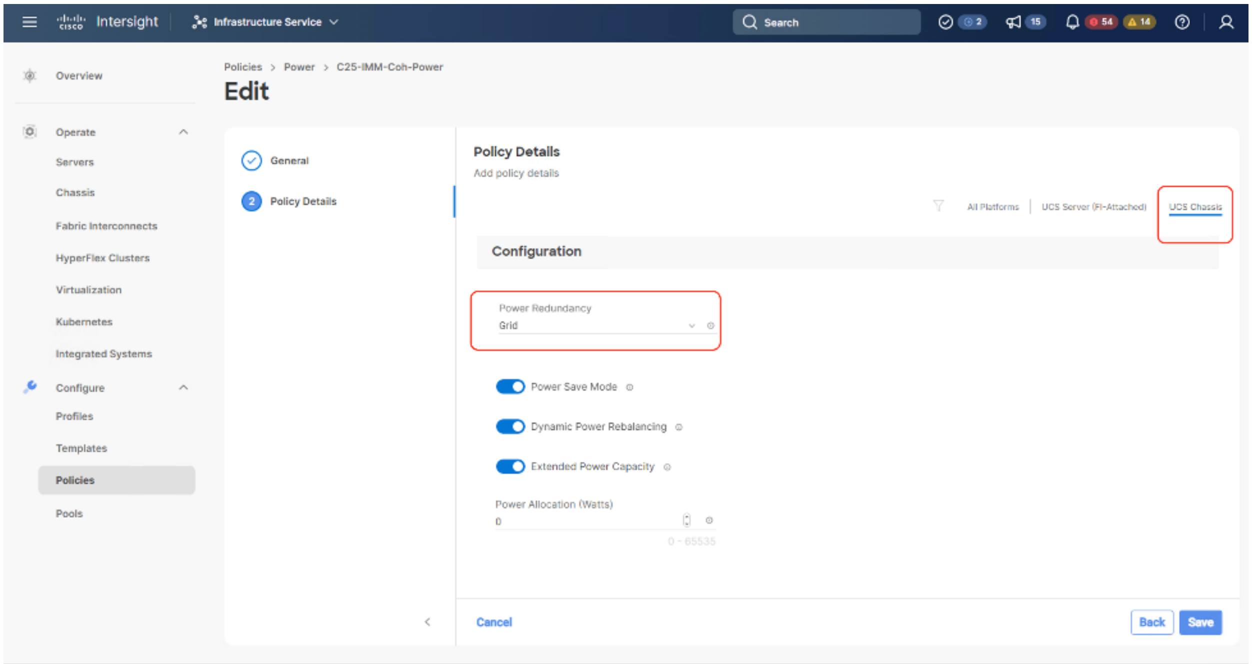
Step 1. Select Infrastructure Services.



Step 2. Under Policies, select Create Policy. In the platform type select UCS Chassis, then select Power and click Start.

Step 3. Name the Power Policy and click Next.

Step 4. Select UCS Chassis. If you have a Cohesity deployment with 8x X210c nodes and a Cisco UCS X-Series chassis equipped with 6x 2800w power supplies, the Power Redundancy as Grid is recommended. Click Create.



Policy Details

Add policy details

Configuration

Power Redundancy: Grid

Power Save Mode: on

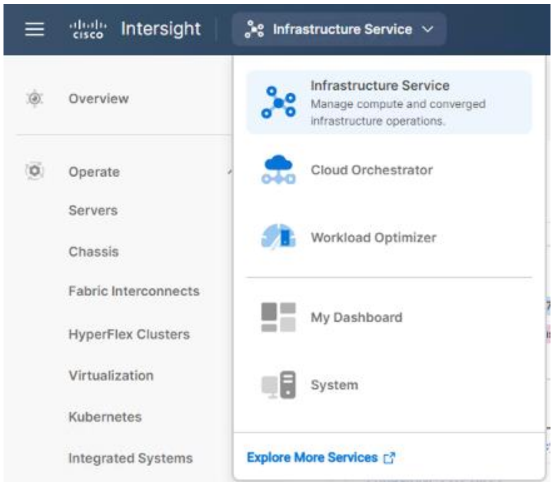
Dynamic Power Rebalancing: on

Extended Power Capacity: on

Power Allocation (Watts): 0 (0 - 65535)

Procedure 3. Create Thermal Policy for Chassis

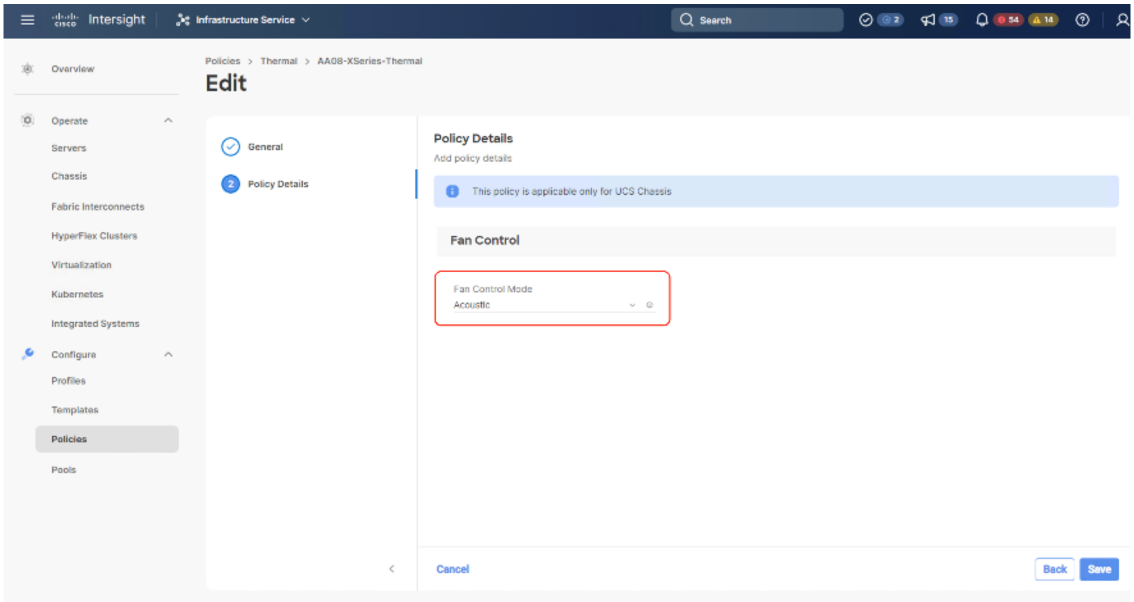
Step 1. Select Infrastructure Services.



Step 2. Under Policies, select Create Policy. In the platform type select UCS Chassis, then select Thermal and click Start.

Step 3. Name the Thermal Policy and click Next.

Step 4. Keep the Fan Control as Acoustic, this will allow optimal cooling with balanced performance for Cohesity nodes on X210c. Click Create.



Policy Details

Add policy details

This policy is applicable only for UCS Chassis

Fan Control

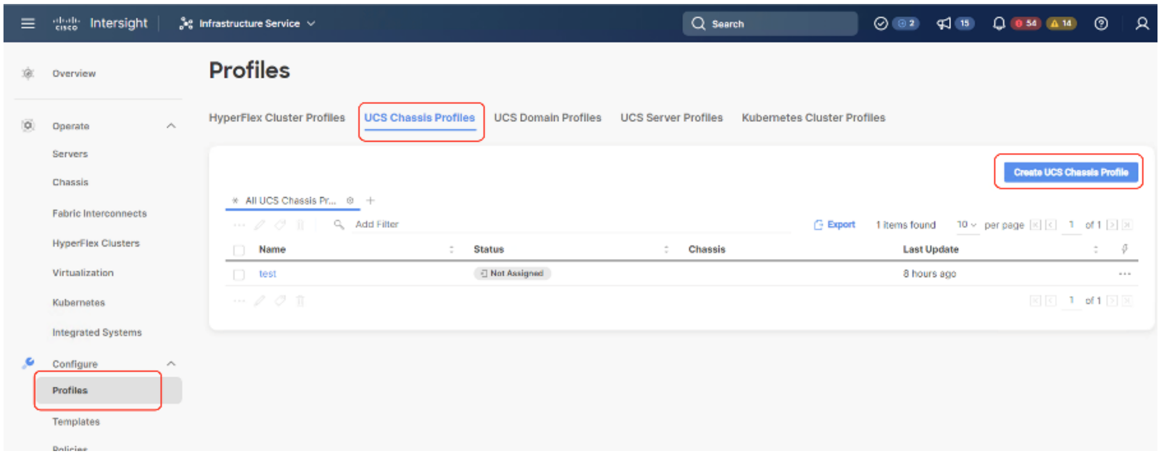
Fan Control Mode: Acoustic

Procedure 4. Create Chassis Profile

Step 1. Select Infrastructure Service from top left option and click Profiles.

Step 2. Select UCS Chassis Profiles.

Step 3. Click Create UCS Chassis Profile.

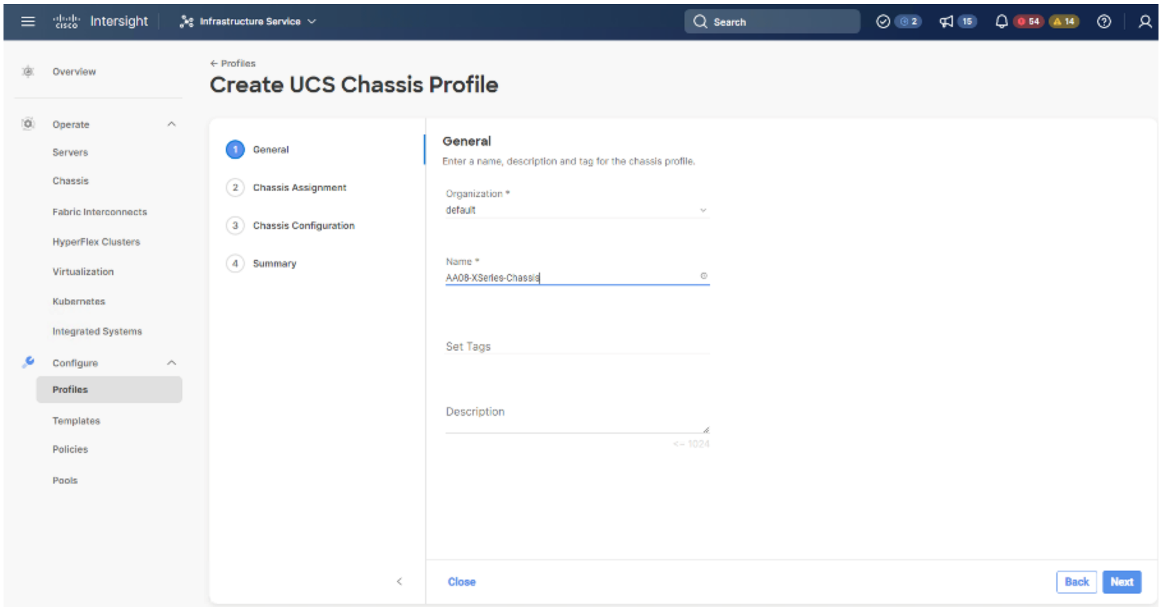


Profiles

1 items found 10 per page 1 of 1

Name	Status	Chassis	Last Update
test	Not Assigned		8 hours ago

Step 4. Enter name for Chassis Profile (for example, AA08-XSeries-Chassis). Click Next.



Create UCS Chassis Profile

General

Enter a name, description and tag for the chassis profile.

Organization *
default

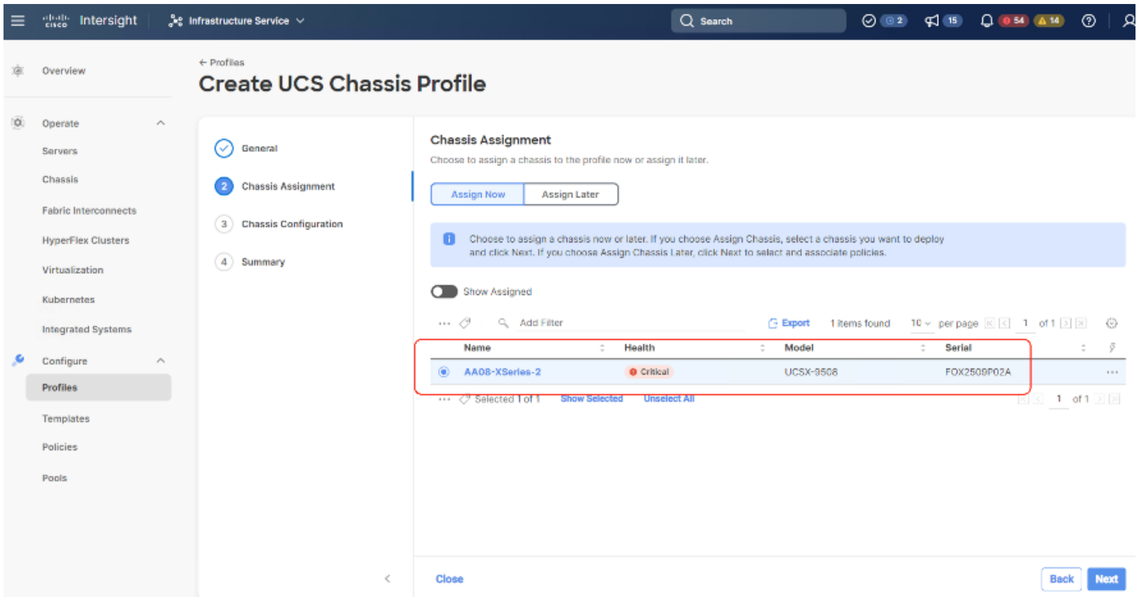
Name *
AA08-XSeries-Chassis

Set Tags

Description

<= 1024

Step 5. Select the Cisco UCS X-Series chassis discovered in the previous procedure. Click Next.



Create UCS Chassis Profile

Chassis Assignment

Choose to assign a chassis to the profile now or assign it later.

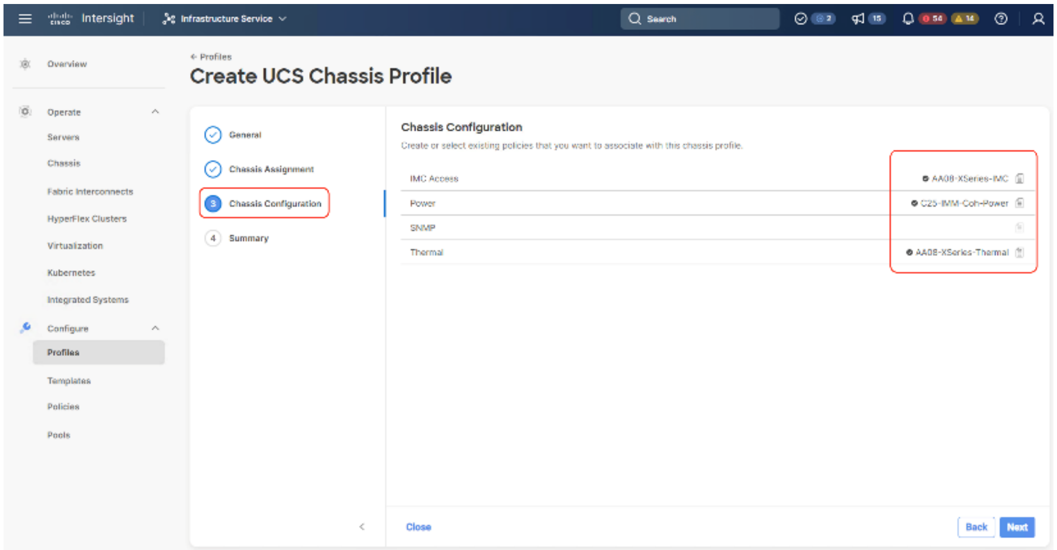
Choose to assign a chassis now or later. If you choose Assign Chassis, select a chassis you want to deploy and click Next. If you choose Assign Chassis Later, click Next to select and associate policies.

1 items found 10 per page 1 of 1

	Name	Health	Model	Serial
●	AA08-XSeries-2	Critical	UCSX-9508	FOX2509P02A

Selected 1 of 1

Step 6. Select IMC Access, Power and Thermal polices created in the previous steps. Click Next.



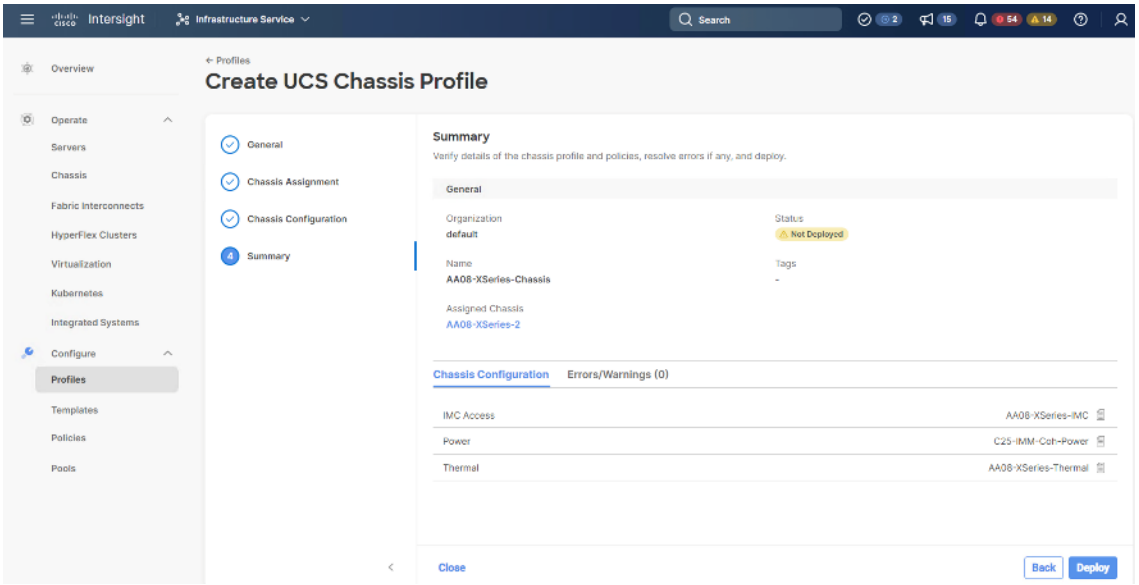
Create UCS Chassis Profile

Chassis Configuration

Create or select existing policies that you want to associate with this chassis profile.

IMC Access	AA08-XSeries-IMC
Power	C25-IMM-Coh-Power
SNMP	
Thermal	AA08-XSeries-Thermal

Step 7. Click Deploy to deploy the chassis profile to the chassis discovered. Monitor the chassis profile deployment status and verify its completion.



Create UCS Chassis Profile

Summary

Verify details of the chassis profile and policies, resolve errors if any, and deploy.

General

Organization: default

Status: Not Deployed

Name: AA08-XSeries-Chassis

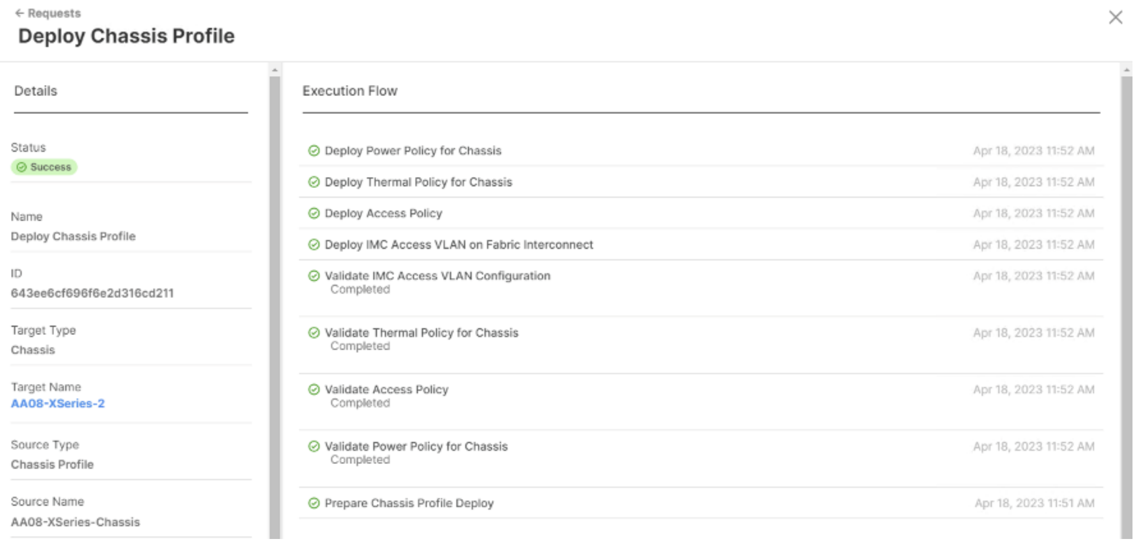
Tags: -

Assigned Chassis: AA08-XSeries-2

Chassis Configuration | Errors/Warnings (0)

IMC Access	AA08-XSeries-IMC
Power	C25-IMM-Coh-Power
Thermal	AA08-XSeries-Thermal

The successful deployment of the Chassis Profile is detailed below:



← Requests

Deploy Chassis Profile

Details

Status: Success

Name: Deploy Chassis Profile

ID: 643ee6cf696f6e2d316cd211

Target Type: Chassis

Target Name: AA08-XSeries-2

Source Type: Chassis Profile

Source Name: AA08-XSeries-Chassis

Execution Flow

✓ Deploy Power Policy for Chassis	Apr 18, 2023 11:52 AM
✓ Deploy Thermal Policy for Chassis	Apr 18, 2023 11:52 AM
✓ Deploy Access Policy	Apr 18, 2023 11:52 AM
✓ Deploy IMC Access VLAN on Fabric Interconnect	Apr 18, 2023 11:52 AM
✓ Validate IMC Access VLAN Configuration Completed	Apr 18, 2023 11:52 AM
✓ Validate Thermal Policy for Chassis Completed	Apr 18, 2023 11:52 AM
✓ Validate Access Policy Completed	Apr 18, 2023 11:52 AM
✓ Validate Power Policy for Chassis Completed	Apr 18, 2023 11:52 AM
✓ Prepare Chassis Profile Deploy	Apr 18, 2023 11:51 AM

Manual Setup Server Template

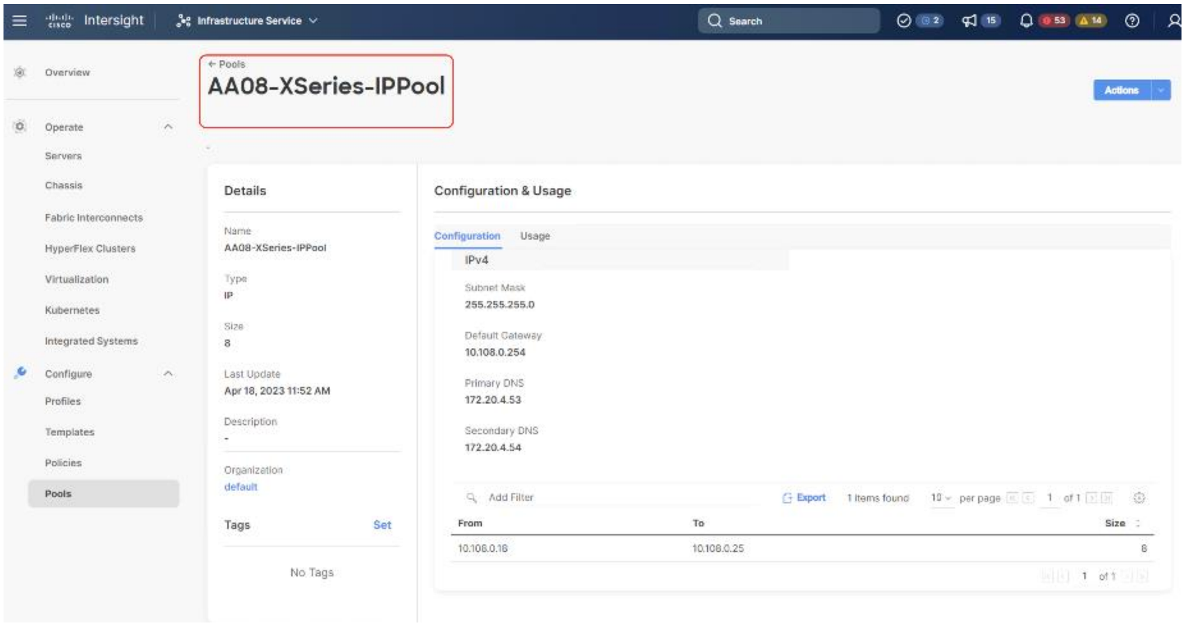
A server profile template enables resource management by simplifying policy alignment and server configuration. You can create a server profile template by using the server profile template wizard, which groups the server policies into the following categories to provide a quick summary view of the policies that are attached to a profile:

- Pools: KVM Management IP Pool, MAC Pool and UUID Pool
- Compute policies: Basic input/output system (BIOS), boot order, Power, and virtual media policies
- Network policies: Adapter configuration and LAN policies
    - The LAN connectivity policy requires you to create an Ethernet network group policy, Ethernet network control policy, Ethernet QoS policy and Ethernet adapter policy
- Storage policies: Not used in Cohesity Deployment
- Management policies: IMC Access Policy for Cisco UCS X210c node, Intelligent Platform Management Interface (IPMI) over LAN; local user; Serial over LAN (SOL); Virtual Media Policy

Create Pools

Procedure 1. Create IP Pool

The IP Pool was previously created during the IMC Access Policy creation for the Cisco UCS X-Series chassis profile as shown below:



AA08-XSeries-IPPool

Details

Name
AA08-XSeries-IPPool

Type
IP

Size
8

Last Update
Apr 18, 2023 11:52 AM

Description
-

Organization
default

Tags Set

No Tags

Configuration & Usage

Configuration Usage

IPv4

Subnet Mask
255.255.255.0

Default Gateway
10.108.0.254

Primary DNS
172.20.4.53

Secondary DNS
172.20.4.54

Add Filter Export 1 items found 10 per page 1 of 1

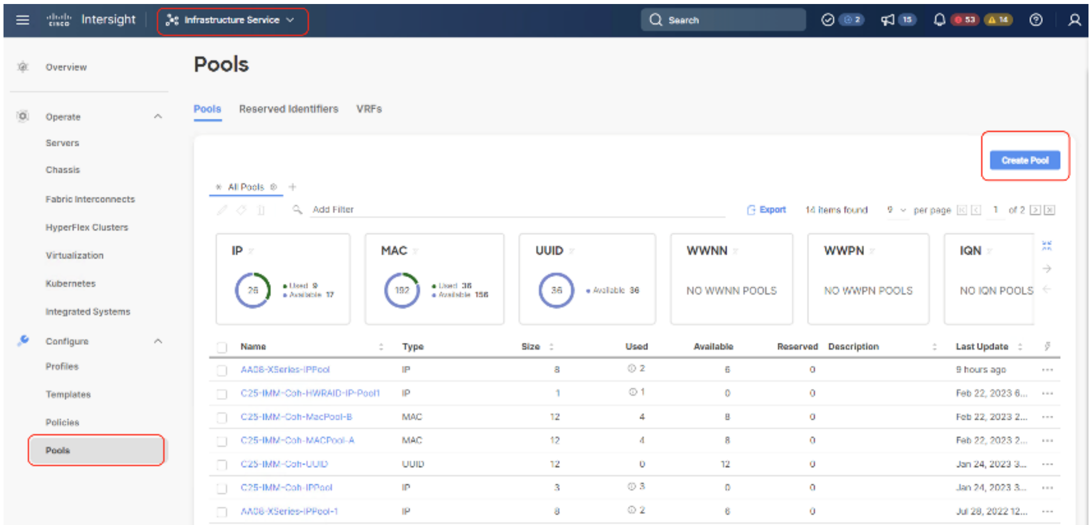
From	To	Size
10.108.0.18	10.108.0.25	8

Procedure 2. Create MAC Pool

Note: Best practices mandate that MAC addresses used for Cisco UCS domains use 00:25:B5 as the first three bytes, which is one of the Organizationally Unique Identifiers (OUI) registered to Cisco Systems, Inc. The remaining 3 bytes can be manually set. The fourth byte (for example, 00:25:B5:xx) is often used to identify a specific UCS domain, meanwhile the fifth byte is often set to correlate to the Cisco UCS fabric and the vNIC placement order.

Note: Create two MAC Pools for the vNIC pinned to each of the Fabric Interconnect (A/B). This allows easier debugging during MAC tracing either on Fabric Interconnect or on the uplink Cisco Nexus switch.

Step 1. Click Infrastructure Service, select Pool, and click Create Pool.

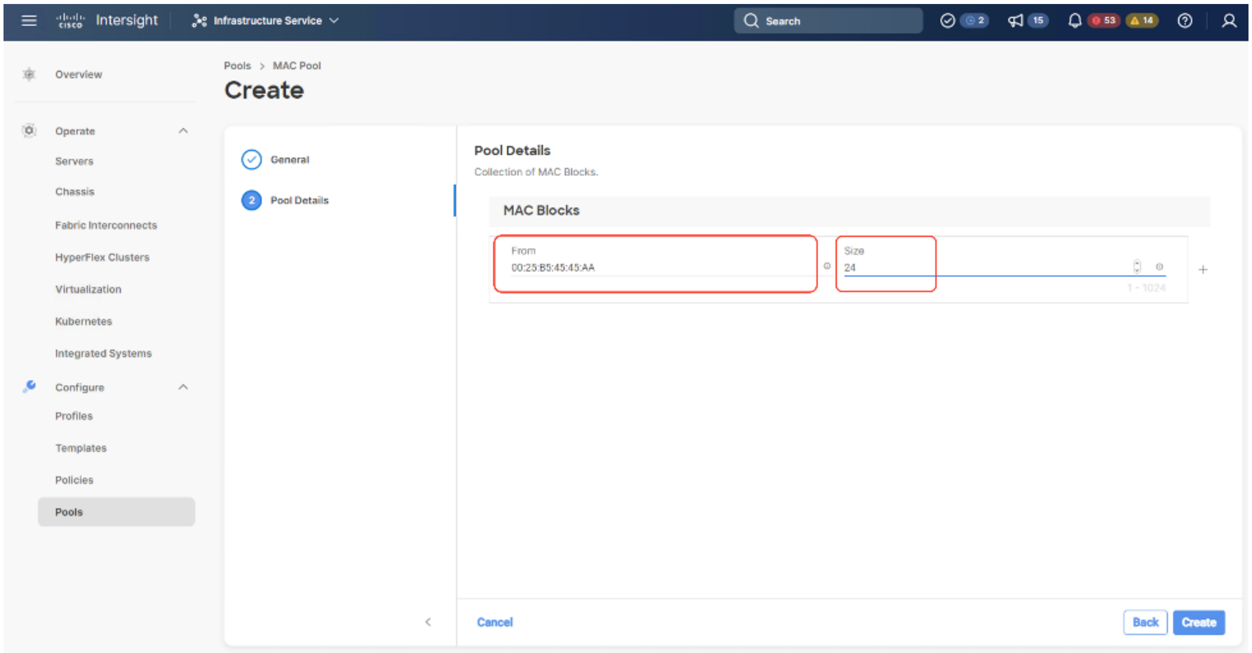


Name	Type	Size	Used	Available	Reserved	Description	Last Update
AA08-XSeries-IPPool	IP	8	2	6	0		9 hours ago
C25-IMM-Coh-HWRAID-IP-Pool1	IP	1	1	0	0		Feb 22, 2023 6...
C25-IMM-Coh-MacPool-B	MAC	12	4	8	0		Feb 22, 2023 2...
C25-IMM-Coh-MACPool-A	MAC	12	4	8	0		Feb 22, 2023 2...
C25-IMM-Coh-UUID	UUID	12	0	12	0		Jan 24, 2023 3...
C25-IMM-Coh-IPPool	IP	3	3	0	0		Jan 24, 2023 3...
AA08-XSeries-IPPool-1	IP	8	2	6	0		Jul 28, 2022 12...

Step 2. Select MAC and click Start.

Step 3. Enter a Name for Mac Pool (A) and click Start.

Step 4. Enter the last three octet of MAC address and the size of the Pool and click Create.



Pool Details

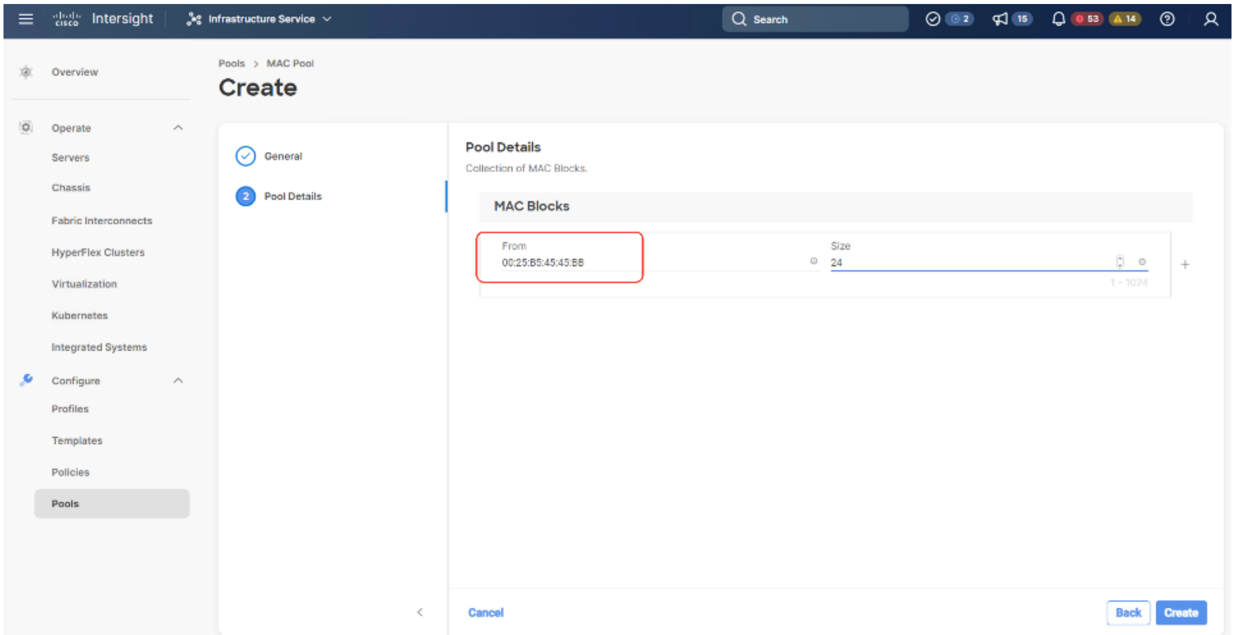
Collection of MAC Blocks.

MAC Blocks

From: 00:25:B5:45:45:AA

Size: 24 (1 - 1024)

Step 5. Repeat this procedure for the MAC Pool for the vNIC pinned to Fabric Interconnect B, shown below:



Pool Details

Collection of MAC Blocks.

MAC Blocks

From: 00:25:B5:45:45:BB

Size: 24 (1 - 1024)

Procedure 3. Create UUID Pool

Step 1. Click Infrastructure Service, select Pool, and click Create Pool.

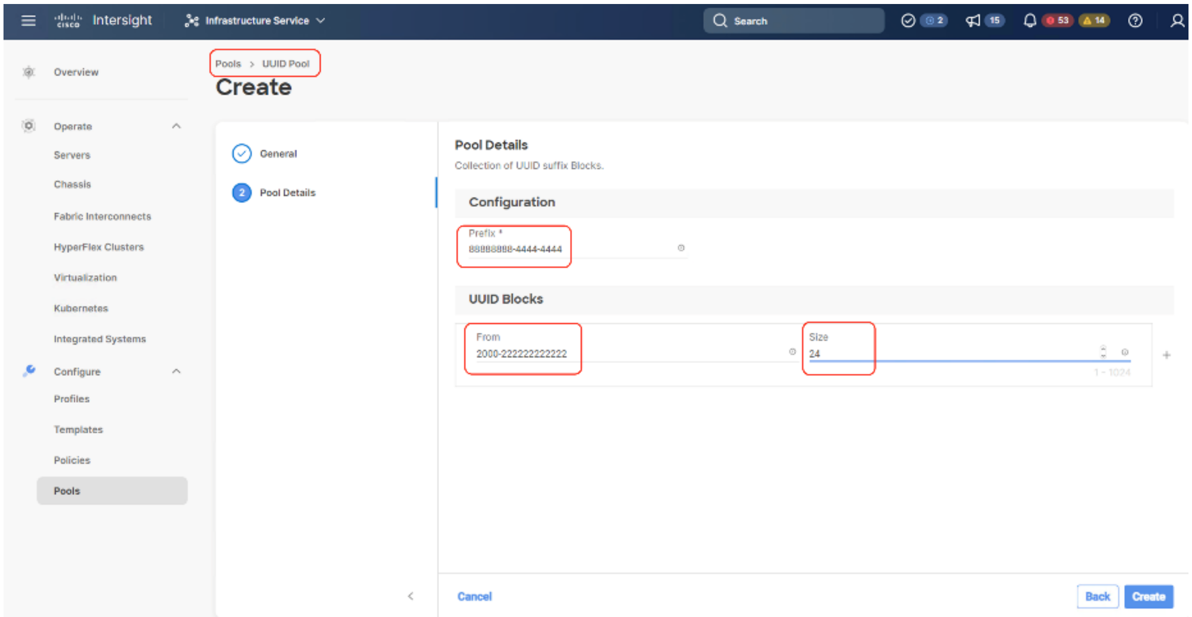
Step 2. Select UUID and click Start.

Step 3. Enter a Name for UUID Pool and click Next.

Step 4. Enter a UUID Prefix (the UUID prefix must be in hexadecimal format xxxxxxxx-xxxx-xxxx).

Step 5. Enter UUID Suffix (starting UUID suffix of the block must be in hexadecimal format xxxx-xxxxxxxxxxxx).

Step 6. Enter the size of the UUID Pool and click Create. The details are shown below:



Pool Details

Collection of UUID suffix Blocks.

Configuration

Prefix * 88888888-4444-4444

UUID Blocks

From 2000-222222222222

Size 24 (1 - 1024)

Create Server Policies

Procedure 1. Create BIOS Policy

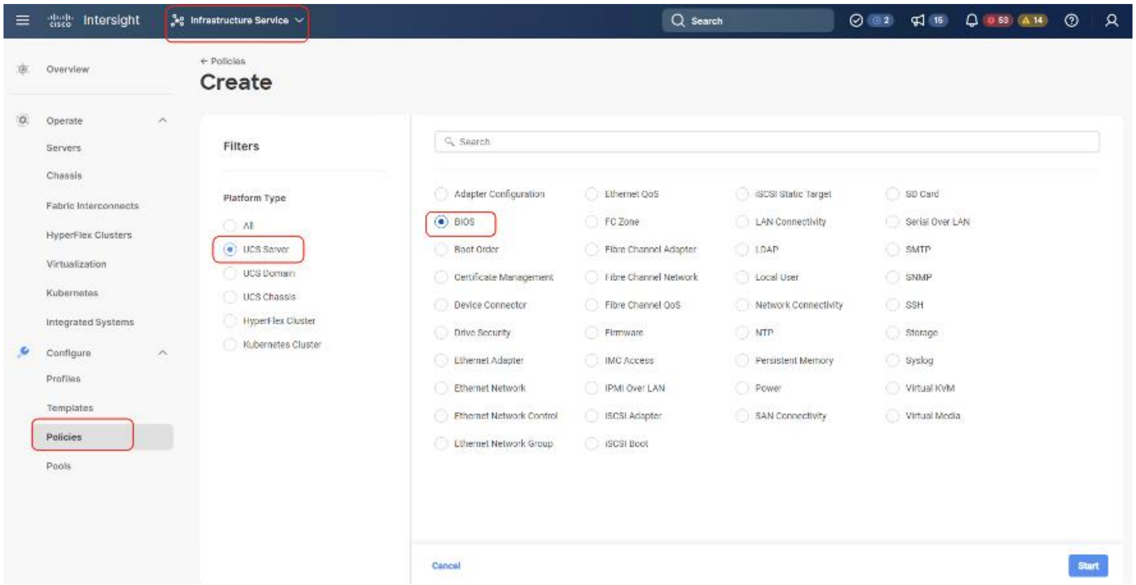
Table 16 lists the required polices for the BIOS policy.

Table 16. Policies required for domain profile

Option	Settings
Memory -> Memory Refresh Rate	1x Refresh
Power and Performance -> Enhanced CPU Performance	Auto
Processor -> Energy-Performance	Balanced performance
Processor -> CPU Performance	enterprise
Processor -> Processor EPP Enable	enabled
Processor -> EPP Profile	Balanced performance
Processor -> Processor C1E	disabled
Processor -> Processor C6 Report	enable
Processor -> Power Performance Tuning	os
Serial Port -> Serial A Enable	enabled

Step 1. Click Infrastructure Service, select Policies, and click Create Policy.

Step 2. Select UCS Server, BIOS and click Start.

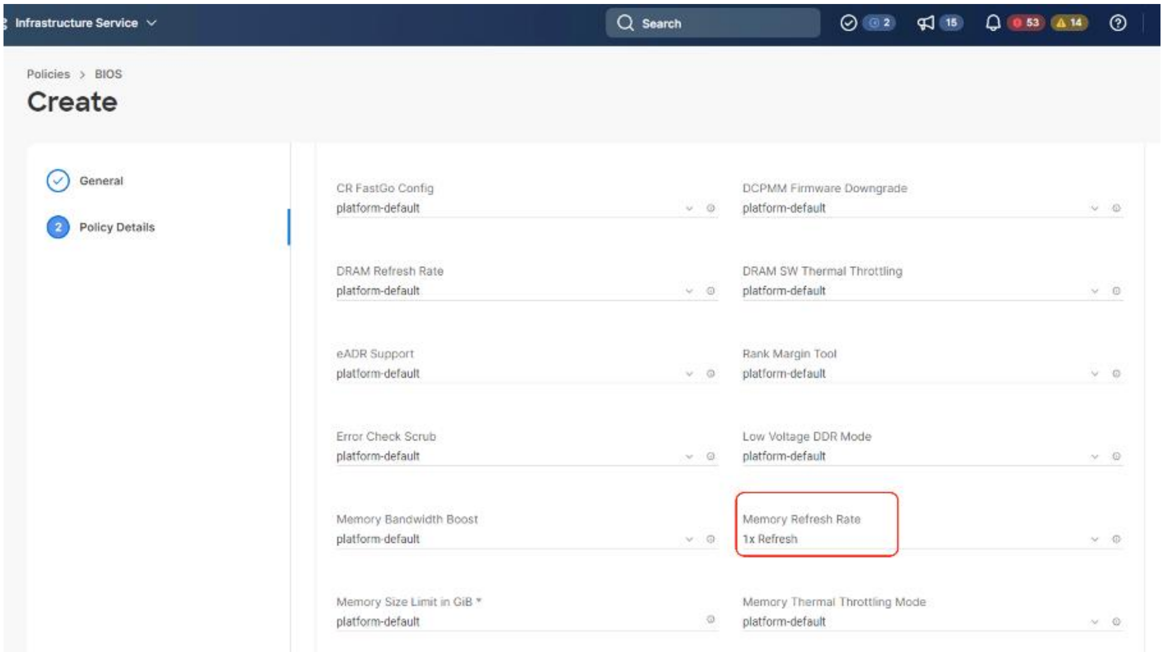


Platform Type: ● UCS Server

● BIOS

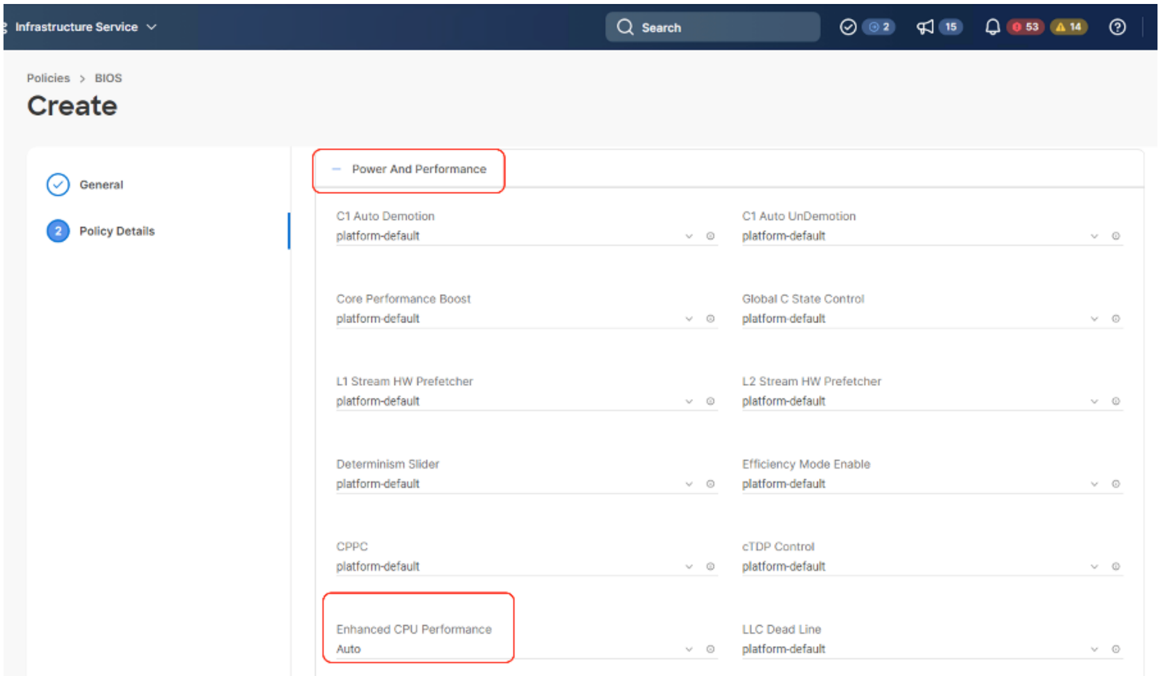
Step 3. Enter a Name for BIOS Policy.

Step 4. Select BIOS Option and change the Memory Refresh Rate to 1X.



CR FastGo Config platform-default	DCPMM Firmware Downgrade platform-default
DRAM Refresh Rate platform-default	DRAM SW Thermal Throttling platform-default
eADR Support platform-default	Rank Margin Tool platform-default
Error Check Scrub platform-default	Low Voltage DDR Mode platform-default
Memory Bandwidth Boost platform-default	Memory Refresh Rate 1x Refresh
Memory Size Limit in GiB * platform-default	Memory Thermal Throttling Mode platform-default

Step 5. Select Power and Performance and change Enhanced CPU Performance to Auto.



C1 Auto Demotion: platform-default

C1 Auto UnDemotion: platform-default

Core Performance Boost: platform-default

Global C State Control: platform-default

L1 Stream HW Prefetcher: platform-default

L2 Stream HW Prefetcher: platform-default

Determinism Slider: platform-default

Efficiency Mode Enable: platform-default

CPPC: platform-default

cTDP Control: platform-default

Enhanced CPU Performance: Auto

LLC Dead Line: platform-default

Step 6. Select CPU and change the following settings:

- Energy-Performance > Balanced performance
- CPU Performance > enterprise
- Processor EPP Enable > enabled
- EPP Profile > Balanced performance
- Processor C1E > disabled
- Processor C6 Report > enable
- Power Performance Tuning > os

Step 7. Select Serial A Enabled and change to enabled.

Step 8. Click Create.

Procedure 2. Create Boot Order Policy

The boot order policy is configured with the Unified Extensible Firmware Interface (UEFI) boot mode, mapping of two M.2 boot drives and the virtual Media (KVM mapper DVD). Cohesity creates a software RAID across 2x M.2 drives provisioned in JBOD mode.

Step 1. Click Infrastructure Service, select Policies, and click Create Policy.

Step 2. Select UCS Server, Boot Order, and click Start.

Step 3. Enter a Name for Boot Order Policy.

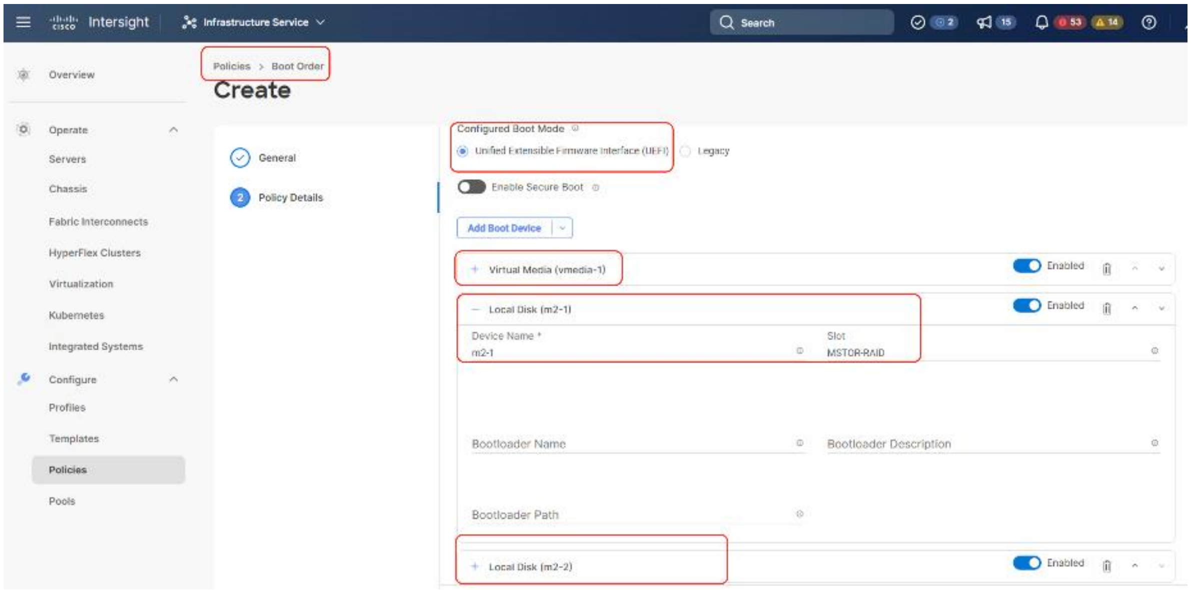
Step 4. Under Policy Detail, select UCS Server (FI Attached), and ensure UEFI is checked.

Step 5. Select Add Boot Device and click Local Disk, name the device name as m2-2 and slot as MSTOR-RAID.

Step 6. Select Add Boot Device and click Local Disk, name the device name as m2-1 and slot as MSTOR-RAID.

Step 7. Select Add Boot Device and click vMedia and name the ‘vmedia-1’ device name

Step 8. Ensure vMedia is at the highest boot priority as shown below:



Policies > Boot Order

Create

Configured Boot Mode: ● Unified Extensible Firmware Interface (UEFI) ○ Legacy

Enable Secure Boot

- Virtual Media (vmedia-1) — Enabled
- Local Disk (m2-1) — Enabled
  - Device Name *: m2-1
  - Slot: MSTOR-RAID
  - Bootloader Name
  - Bootloader Description
  - Bootloader Path
- Local Disk (m2-2) — Enabled

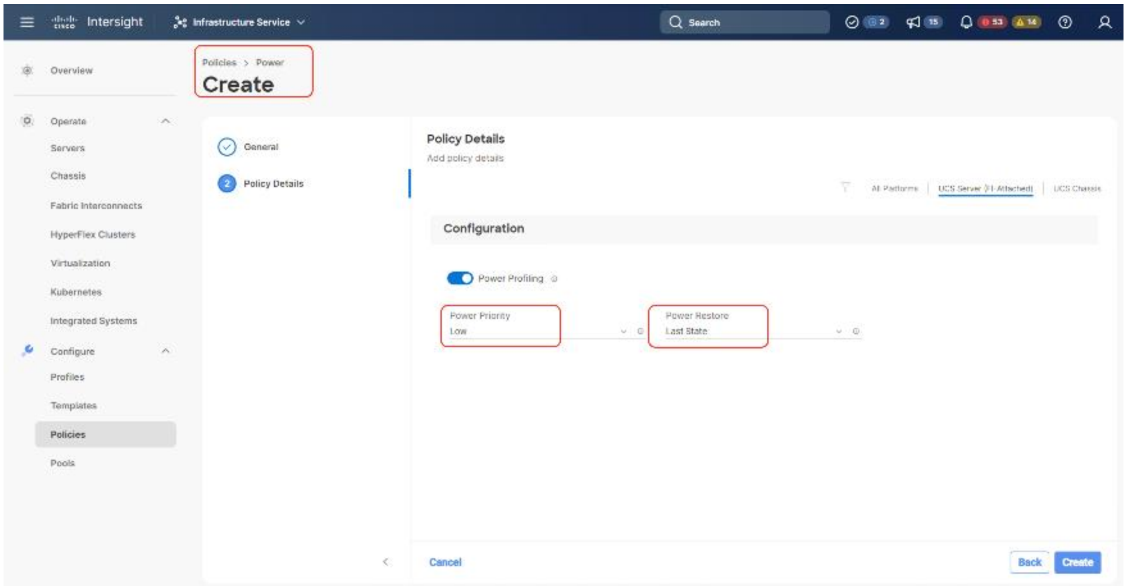
Procedure 3. Create Power Policy

Step 1. Click Infrastructure Service, select Policies, and click Create Policy.

Step 2. Select UCS Server, then select Power and click Start.

Step 3. Name the Power policy, click Next.

Step 4. Select the default power priority, select Power Restore as Last State and click Create. The Power Restore sets the Power Restore State of the Server. In the absence of Cisco Intersight connectivity, the chassis will use this policy to recover the host power after a power loss event.



Policies > Power

Create

Policy Details

Add policy details

Configuration

Power Profiling

Power Priority: Low

Power Restore: Last State

Procedure 4. Create Virtual Media Policy

Step 1. Click Infrastructure Service, select Policies, and click Create Policy.

Step 2. Select UCS Server, then select Virtual Media and click Start.

Step 3. Name the Virtual Media policy and click Next.

Step 4. Select UCS Server (FI Attached), keep the defaults. Click Create.

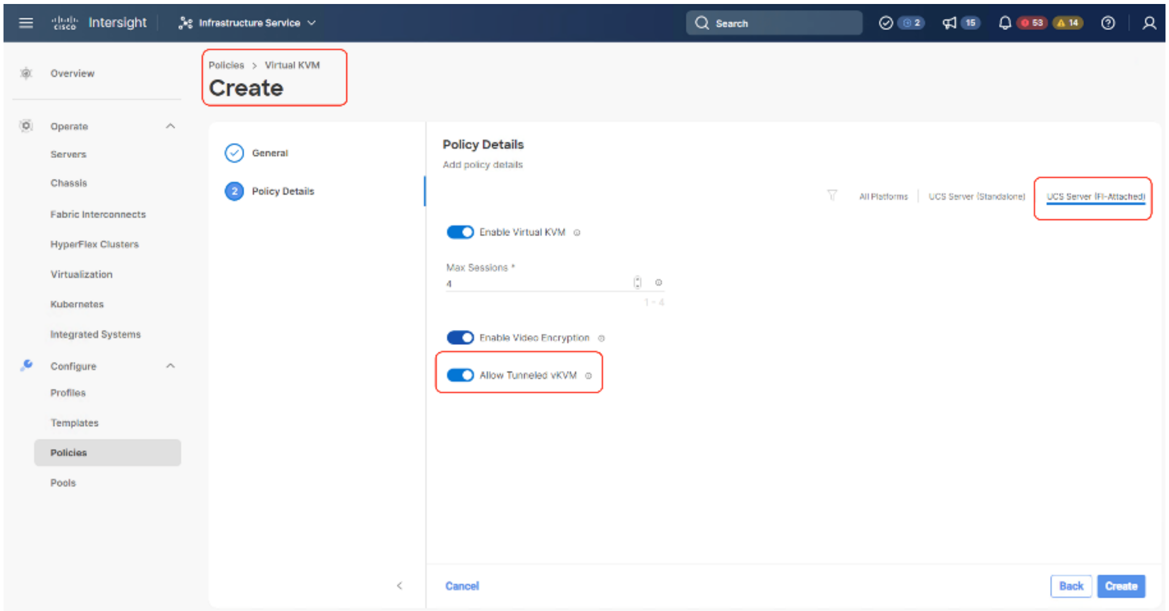
Procedure 5. Create virtual KVM Policy

Step 1. Click Infrastructure Service, select Policies, and click Create Policy.

Step 2. Select UCS Server, then select Virtual KVM and click Start.

Step 3. Name the virtual KVM policy and click Next.

Step 4. Select UCS Server (FI Attached), keep the defaults and enable Allow tunneled KVM. Click Create.



Policy Details

Add policy details

Enable Virtual KVM: on

Max Sessions *: 4 (1 - 4)

Enable Video Encryption: on

Allow Tunneled vKVM: on

Procedure 6. Create IMC Access Policy for X210C nodes

Currently, the management IP addresses used to access the CIMC on a server can be In-Band addresses, through which traffic traverses the fabric interconnect via the fabric uplink port. For more information, see: https://intersight.com/help/saas/features/servers/configure#server_policies

Note: Currently for Cisco X-Series, IMC access policy can be configured only with In-Band IP addresses.

Note: Ensure no IPMI configuration is defined during the Cohesity Cluster creation. Cohesity software doesn't have dependencies on the IPMI network or user settings. Hardware IPMI events monitoring is through local execution of ipmitool commands.

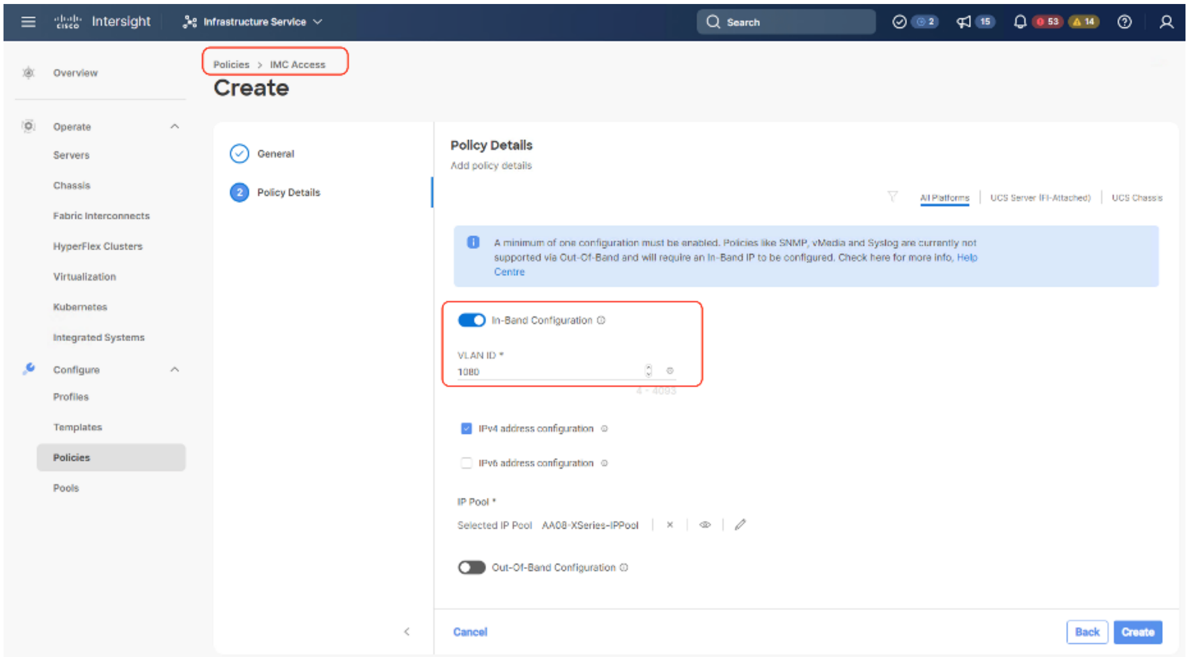
Note: When the Cohesity cluster is configured, you will see the alert notification "IPMI config is absent." This is due to the "No IPMI configuration" during the Cohesity cluster creation. Please ignore this alert or contact Cohesity support for more details.

Step 1. Click Infrastructure Service, select Policies, and click Create Policy.

Step 2. Select UCS Server, then select IMC Access and click Start.

Step 3. Name the IMC Access policy, then click Next.

Step 4. Enter the VLAN ID for IN-Band Access, select IP Pool.



Create

Policy Details

Add policy details

A minimum of one configuration must be enabled. Policies like SNMP, vMedia and Syslog are currently not supported via Out-Of-Band and will require an In-Band IP to be configured. Check here for more info, Help Centre

● In-Band Configuration

VLAN ID *
1080
4 - 4093

☑ IPv4 address configuration

□ IPv6 address configuration

IP Pool *
Selected IP Pool AA08-XSeries-IPPool

○ Out-Of-Band Configuration

Procedure 7. Create IPMI over LAN Policy

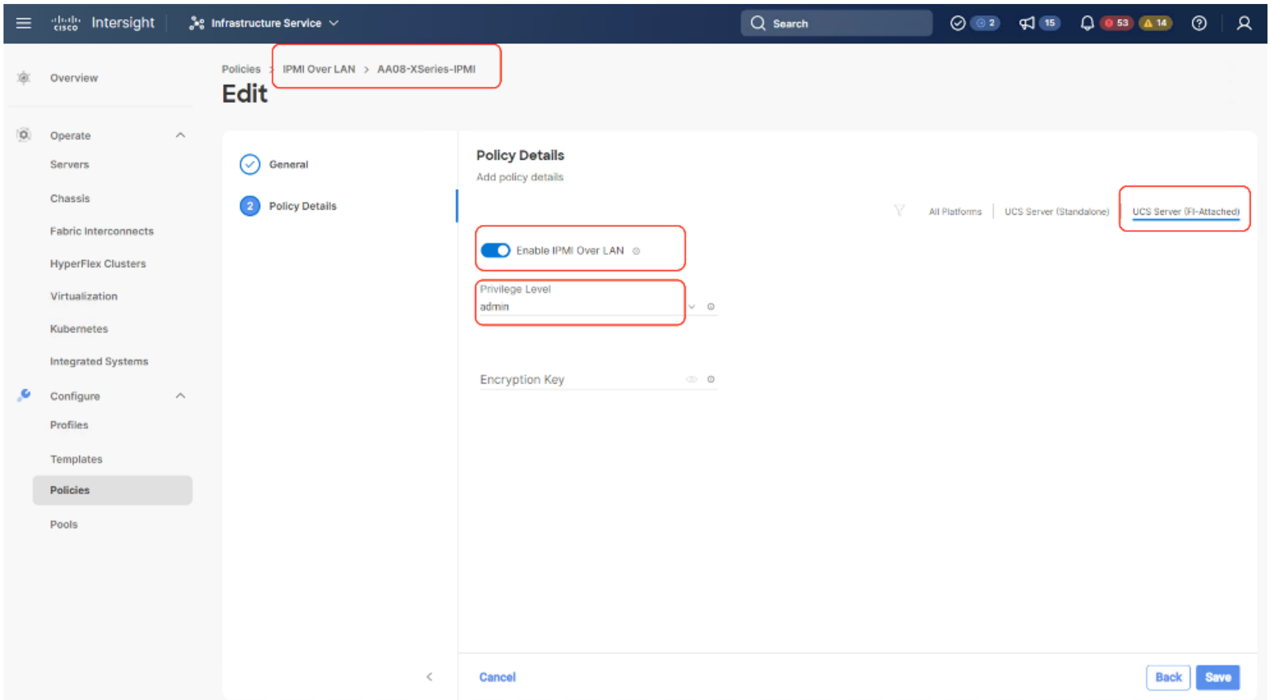
Note: The FI-attached blade servers do not support an encryption key. For the Cisco UCS X-Series deployment, please do not enter an encryption key.

Step 1. Name the IPMI Over LAN policy, then click Next.

Step 2. Select UCS Server (FI-Attached).

Step 3. For the Privilege Level, select admin and do no create an encryption key (FI-attached blade servers do not support an encryption key).

Step 4. Click Save.



Policies > IPMI Over LAN > AA08-XSeries-IPMI

Edit

Policy Details

Add policy details

Enable IPMI Over LAN

Privilege Level
admin

Encryption Key

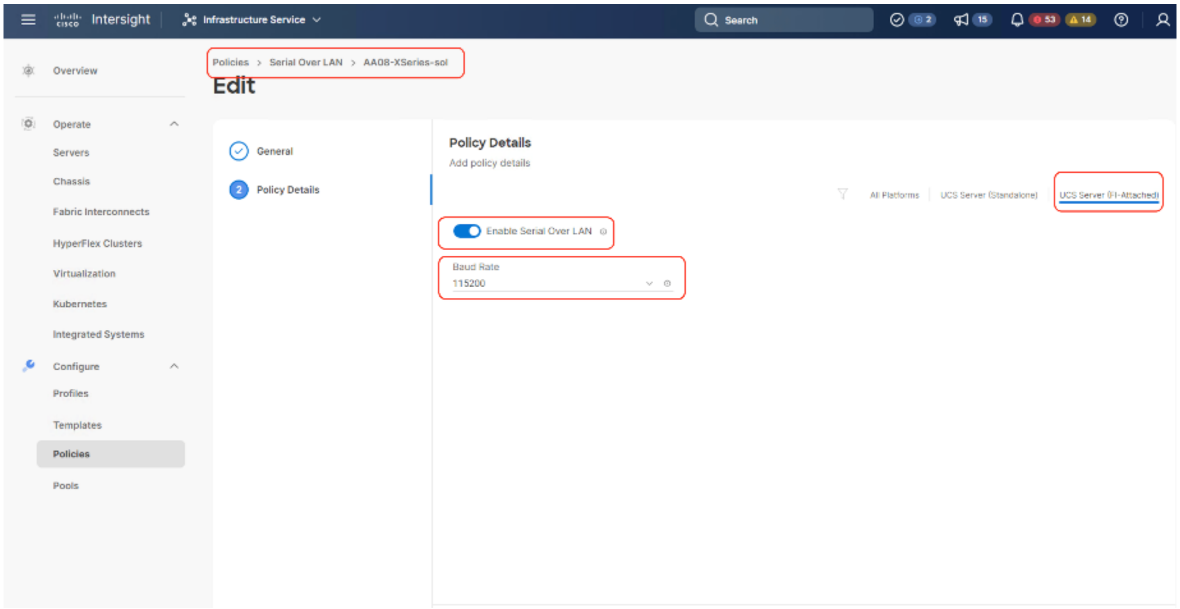
Procedure 8. Create Serial over LAN Policy

Step 1. Click Infrastructure Service, select Policies, and click Create Policy.

Step 2. Select UCS Server, then select Serial Over LAN and click Start.

Step 3. Name the Serial Over LAN policy and click Next.

Step 4. Select UCS Server (FI- Attached) and the select the Baud Rate of 11520. Click Create.



Policies > Serial Over LAN > AA08-XSeries-sol

Edit

Policy Details

Add policy details

Enable Serial Over LAN

Baud Rate
115200

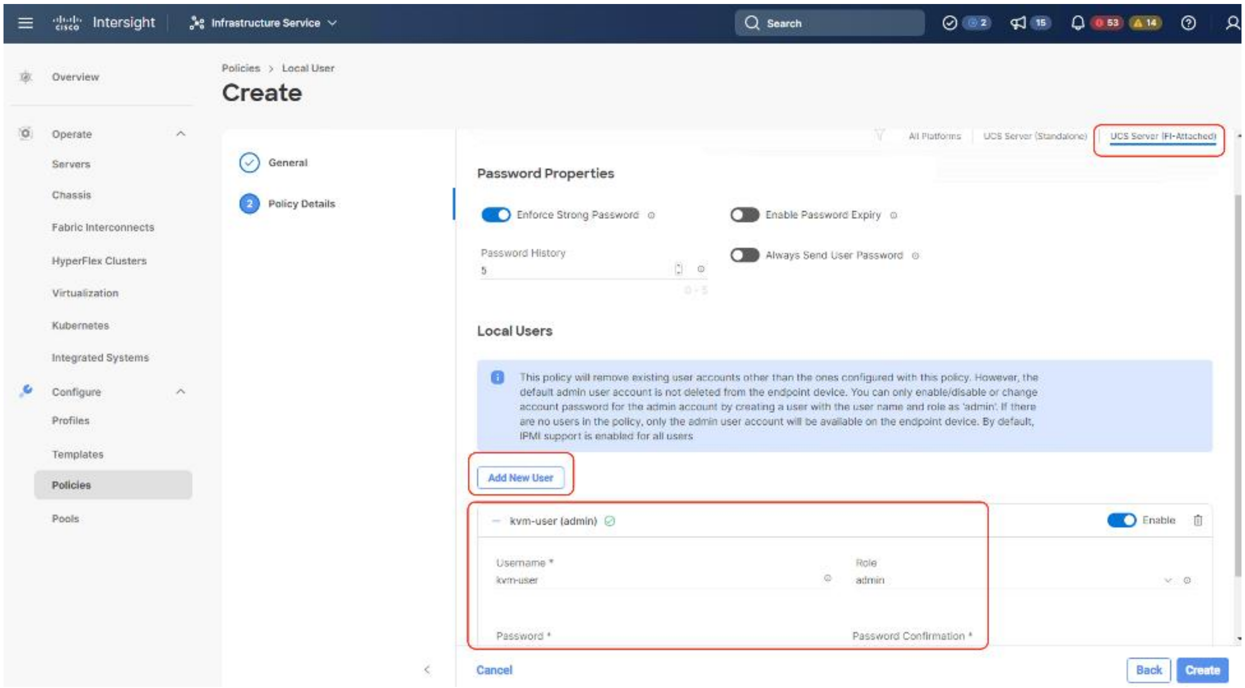
Procedure 9. Create Local User Policy

Step 1. Click Infrastructure Service, select Policies, and click Create Policy.

Step 2. Select UCS Server, then select Local User and click Start.

Step 3. Name the Local User policy and click Next.

Step 4. Add a local user with the name <<kvm-user>> and role as admin and enter a password. This is used to access the server KVM through KVM IP. Click Create.



Password Properties

Enforce Strong Password: on

Enable Password Expiry: off

Password History: 5 (0 - 5)

Always Send User Password: off

Local Users

This policy will remove existing user accounts other than the ones configured with this policy. However, the default admin user account is not deleted from the endpoint device. You can only enable/disable or change account password for the admin account by creating a user with the user name and role as 'admin'. If there are no users in the policy, only the admin user account will be available on the endpoint device. By default, IPMI support is enabled for all users

kvm-user (admin) — Enable: on

Username *: kvm-user

Role: admin

Password *

Password Confirmation *

Procedure 10. Create LAN Connectivity Policy

Note: For Cohesity network access, the LAN connectivity policy is used to create two virtual network interfaces (vNICs); vNIC0 and vNIC1. Each vNIC0 and vNIC1 are pinned on Switch ID A and Switch ID B respectively with the same Ethernet network group policy, Ethernet network control policy, Ethernet QoS policy and Ethernet adapter policy. The two vNICs managed by Cohesity for all UCS Managed mode or Intersight Managed mode (connected to Cisco UCS Fabric Interconnect) should be in Active-Backup mode (bond mode 1).

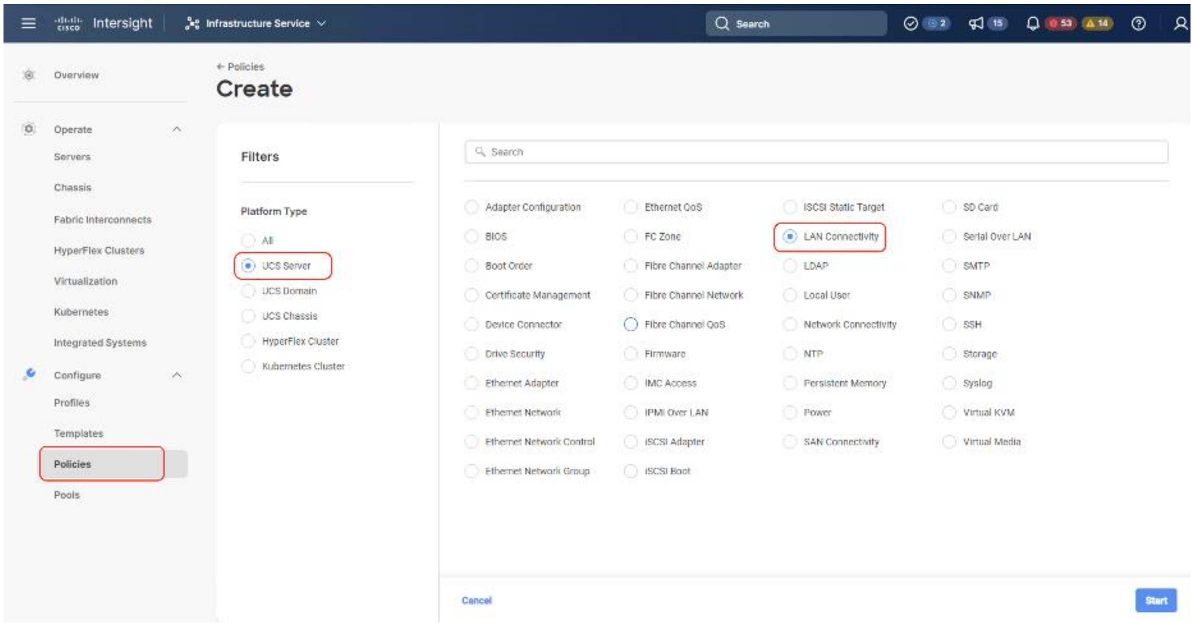
Note: The primary network VLAN for Cohesity should be marked as native or the primary network VLAN should be tagged at the uplink switch.

Note: For UCS Managed or IMM deployments, it is recommended to have only two (2) x vNIC (active-backup) for all Cohesity deployments. To allow multiple network access through VLAN, Cohesity supports configuration of a sub-interface, which allows you to can add multiple VLANs to the vNIC.

Note: This configuration does allow more than two (2) vNICs (required for Layer2 disjoint network); the PCI Order should allow the correct vNIC enumeration by the Operation System.

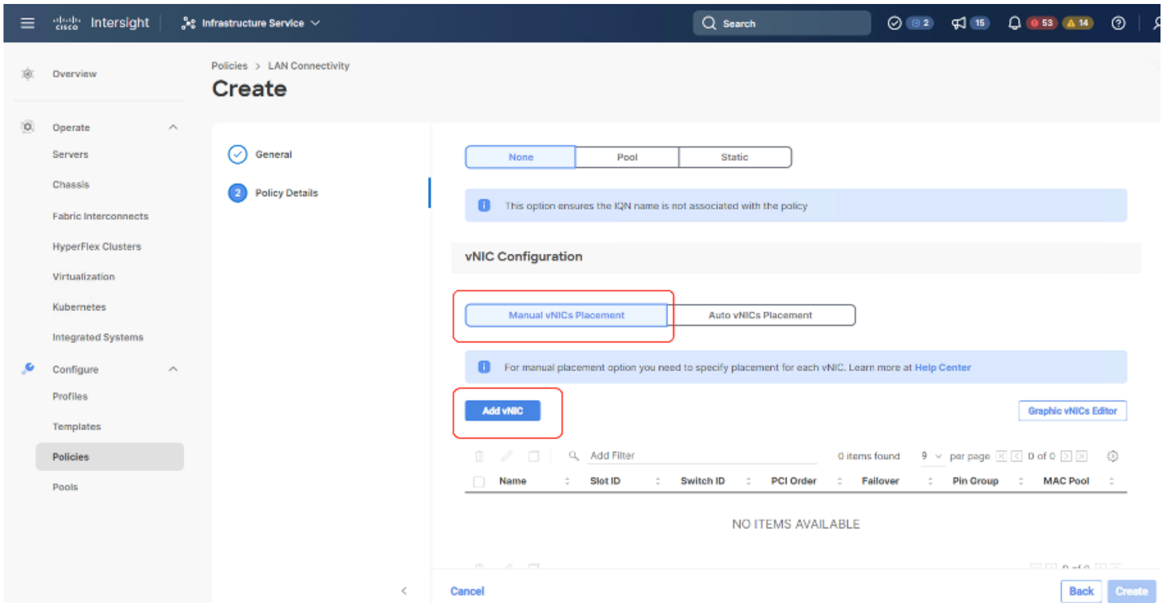
Step 1. Click Infrastructure Service, select Policies, and click Create Policy.

Step 2. Select UCS Server, then select Lan Connectivity Policy and click Start.



Step 3. Name the LAN Connectivity Policy and select UCS Server (FI Attached).

Step 4. Click Add vNIC.



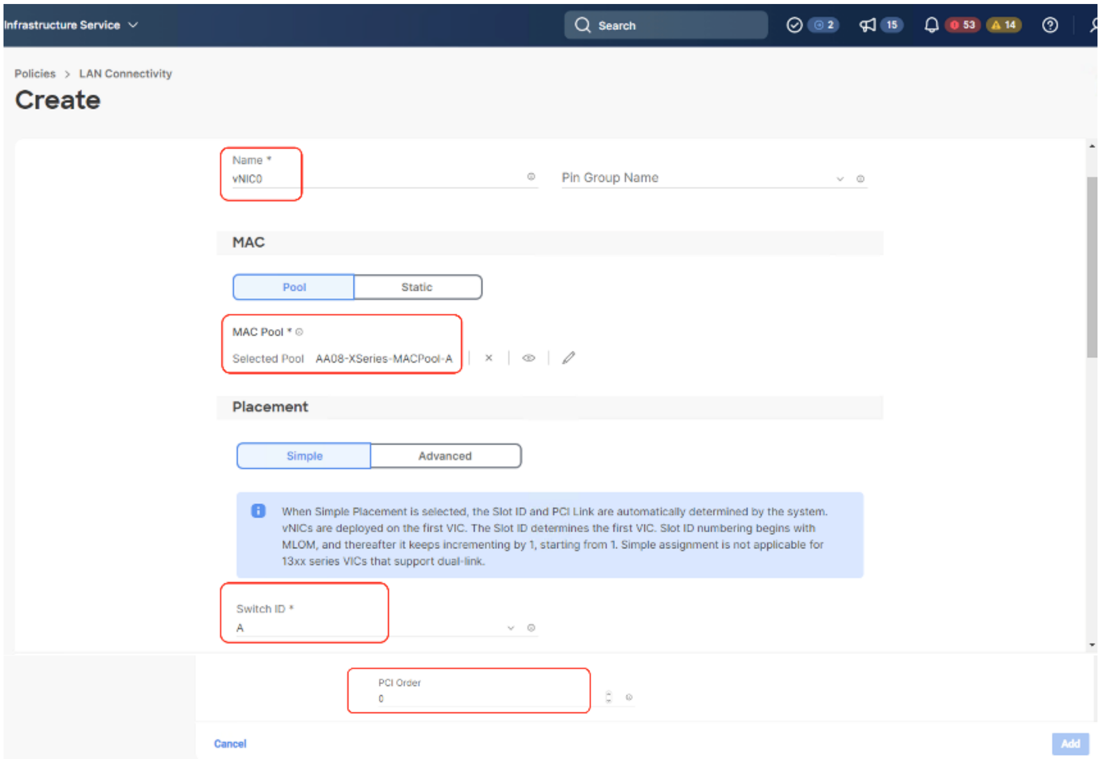
This option ensures the IQN name is not associated with the policy

For manual placement option you need to specify placement for each vNIC. Learn more at Help Center

Step 5. Name the vNIC "vNIC0."

Step 6. For the for vNIC Placement, select Advanced.

Step 7. Select MAC Pool A previously created, Switch ID A, PCI Order 0.



Create

Name * vNIC0

Pin Group Name

MAC

MAC Pool *

Selected Pool AA08-XSeries-MACPool-A

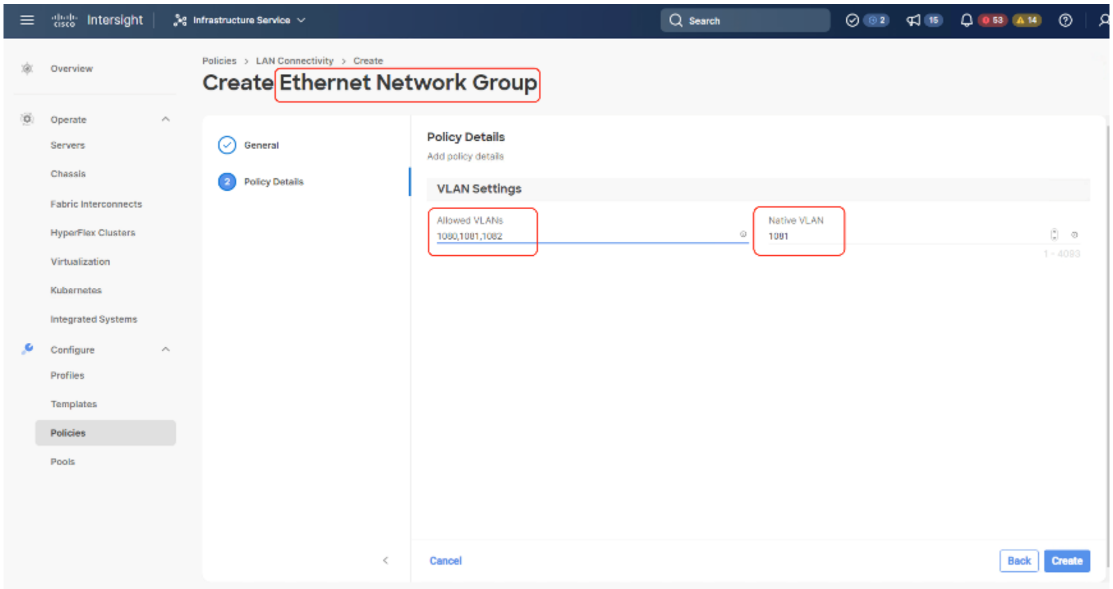
Placement

When Simple Placement is selected, the Slot ID and PCI Link are automatically determined by the system. vNICs are deployed on the first VIC. The Slot ID determines the first VIC. Slot ID numbering begins with MLOM, and thereafter it keeps incrementing by 1, starting from 1. Simple assignment is not applicable for 13xx series VICs that support dual-link.

Switch ID * A

PCI Order 0

Step 8. Create the Ethernet Network Group Policy; add the allowed VLANs and add the native VLAN. The primary network VLAN for Cohesity should be marked as native or the primary network VLAN should be tagged at the uplink switch.



Create Ethernet Network Group

Policy Details

Add policy details

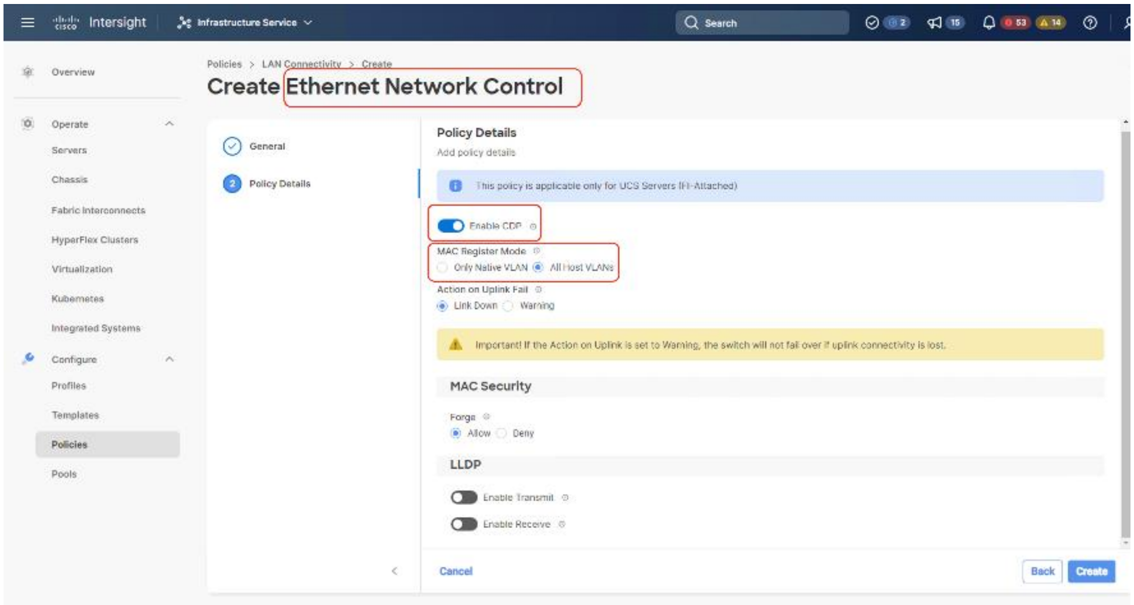
VLAN Settings

Allowed VLANs 1080,1081,1082

Native VLAN 1081

1 - 4093

Step 9. Create the Ethernet Network Control policy; name the policy, enable CDP, set MAC Register Mode as All Host VLANs, and keep the other settings as default.



Create Ethernet Network Control

Policy Details

Add policy details

This policy is applicable only for UCS Servers (FI-Attached)

Enable CDP: on

MAC Register Mode: ○ Only Native VLAN ● All Host VLANs

Action on Uplink Fail: ● Link Down ○ Warning

Important! If the Action on Uplink is set to Warning, the switch will not fail over if uplink connectivity is lost.

MAC Security

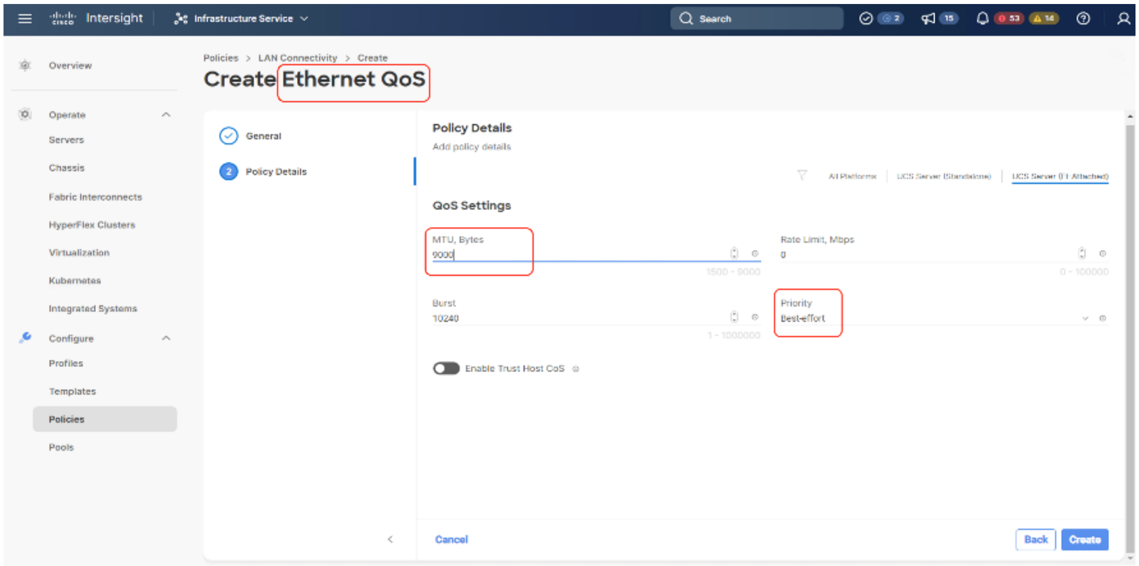
Forge: ● Allow ○ Deny

LLDP

Enable Transmit: off

Enable Receive: off

Step 10. Create the Ethernet QoS Policy; edit the MTU to 9000 and keep the Priority as best-effort.



Create Ethernet QoS

Policy Details

Add policy details

QoS Settings

MTU, Bytes: 9000 (1500 - 9000)

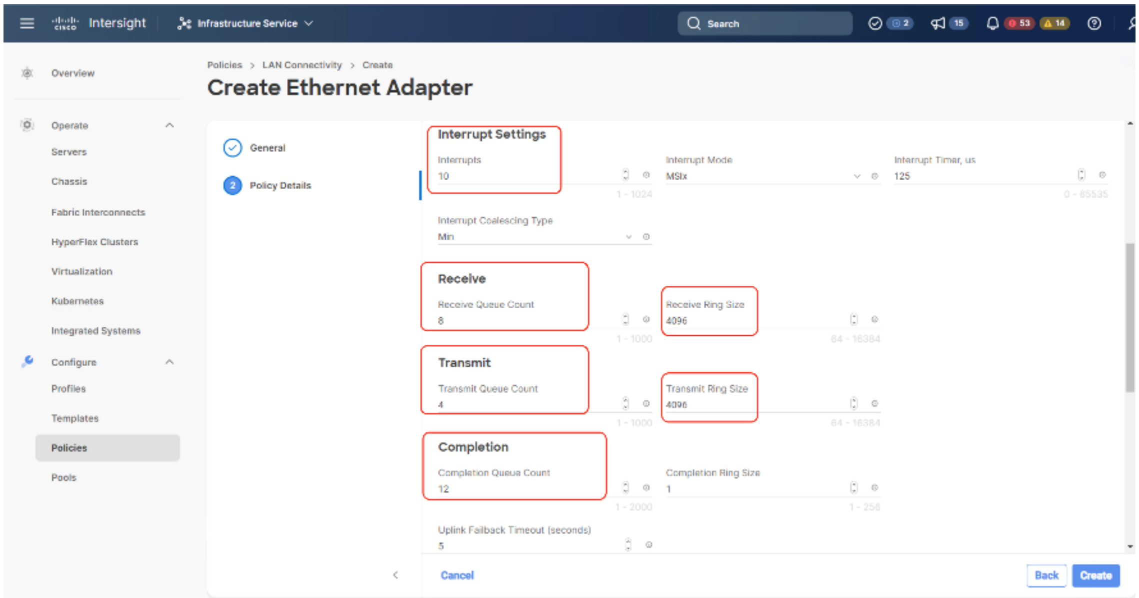
Rate Limit, Mbps: 0 (0 - 100000)

Burst: 10240 (1 - 1000000)

Priority: Best-effort

Enable Trust Host CoS: off

Step 11. Create the Ethernet Adaptor Policy; select UCS Server (FI-Attached), Interrupts=10, Receive Queue Count = 8 Receive Ring Size =4096, Transmit Queue Count = 4, Transmit Ring Size = 4096, Completion Queue = 12, keep the others as default, ensure Receive Side Scaling is enabled.



Policies > LAN Connectivity > Create

Create Ethernet Adapter

Interrupt Settings

Interrupts: 10 (1 - 1024)

Interrupt Mode: MSIx

Interrupt Timer, us: 125 (0 - 65535)

Interrupt Coalescing Type: Min

Receive

Receive Queue Count: 8 (1 - 1000)

Receive Ring Size: 4096 (64 - 16384)

Transmit

Transmit Queue Count: 4 (1 - 1000)

Transmit Ring Size: 4096 (64 - 16384)

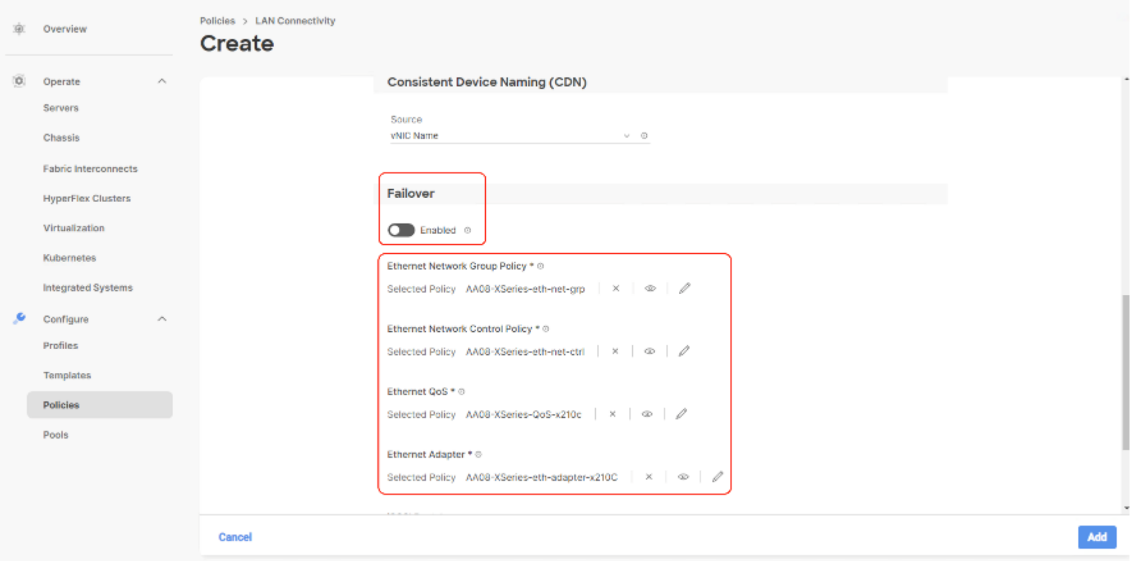
Completion

Completion Queue Count: 12 (1 - 2000)

Completion Ring Size: 1 (1 - 256)

Uplink Failback Timeout (seconds): 5

Step 12. Ensure the four policies are attached and Enable Failover is disabled (default). Click Add.



Policies > LAN Connectivity

Create

Consistent Device Naming (CDN)

Source: vNIC Name

Failover

Enabled

Ethernet Network Group Policy *

Selected Policy AA08-XSeries-eth-net-grp

Ethernet Network Control Policy *

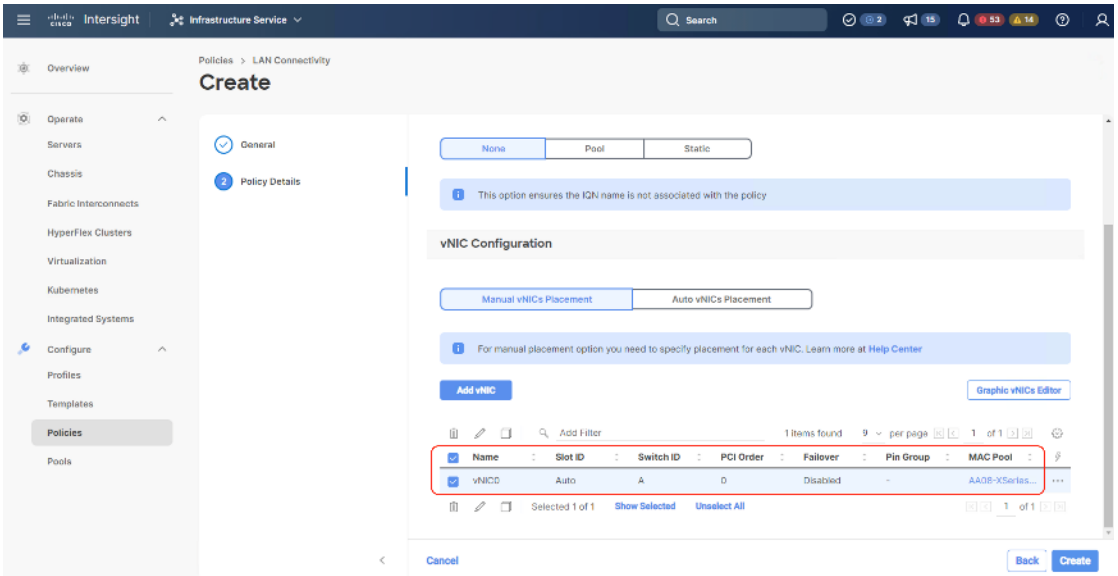
Selected Policy AA08-XSeries-eth-net-ctrl

Ethernet QoS *

Selected Policy AA08-XSeries-QoS-x210c

Ethernet Adapter *

Selected Policy AA08-XSeries-eth-adapter-x210C



Policies > LAN Connectivity

Create

This option ensures the IQN name is not associated with the policy

vNIC Configuration

For manual placement option you need to specify placement for each vNIC. Learn more at Help Center

1 items found 9 per page 1 of 1

☑	Name	Slot ID	Switch ID	PCI Order	Failover	Pin Group	MAC Pool
☑	vNIC0	Auto	A	0	Disabled	-	AA08-XSeries...

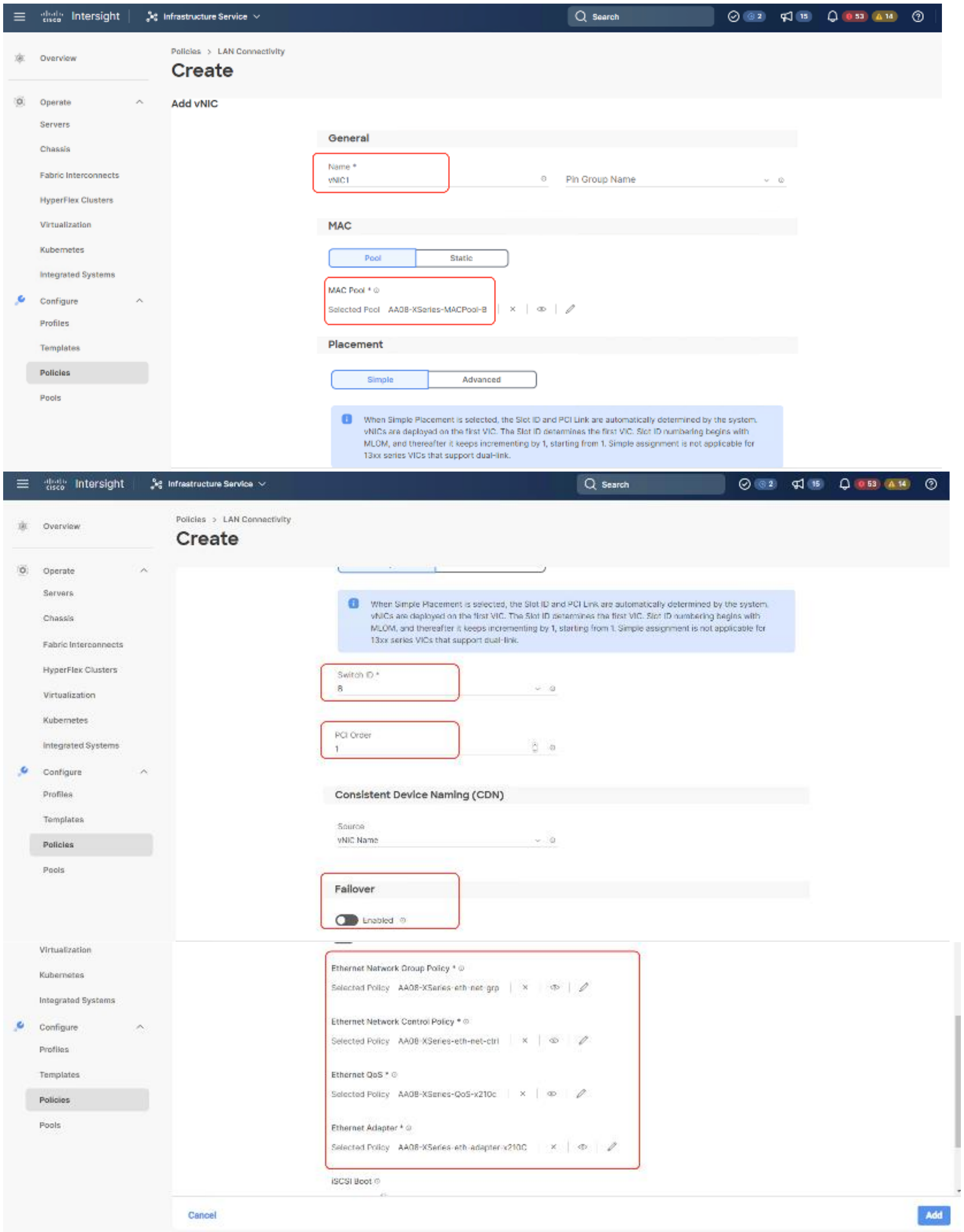
Selected 1 of 1

Step 13. Add vNIC as vNIC1. Select the same setting as vNIC0, the only changes shown below.

Step 14. For Switch ID, select B, and the PCI Order should be 1.

Step 15. Optional. The MAC Pool can be selected as the MAC Pool for Fabric B.

Step 16. Select the Ethernet Network Group Policy, Ethernet Network Control Policy, Ethernet QoS, and Ethernet Adapter policy as created for vNIC0 and click Add.



Create

Add vNIC

General

Name * vNIC1

Pin Group Name

MAC

Pool | Static

MAC Pool *

Selected Pool AA08-XSeries-MACPool-B

Placement

Simple | Advanced

When Simple Placement is selected, the Slot ID and PCI Link are automatically determined by the system. vNICs are deployed on the first VIC. The Slot ID determines the first VIC. Slot ID numbering begins with MLOM, and thereafter it keeps incrementing by 1, starting from 1. Simple assignment is not applicable for 13xx series VICs that support dual-link.

Switch ID * B

PCI Order 1

Consistent Device Naming (CDN)

Source vNIC Name

Failover

Enabled

Ethernet Network Group Policy *

Selected Policy AA08-XSeries-eth-net-grp

Ethernet Network Control Policy *

Selected Policy AA08-XSeries-eth-net-ctrl

Ethernet QoS *

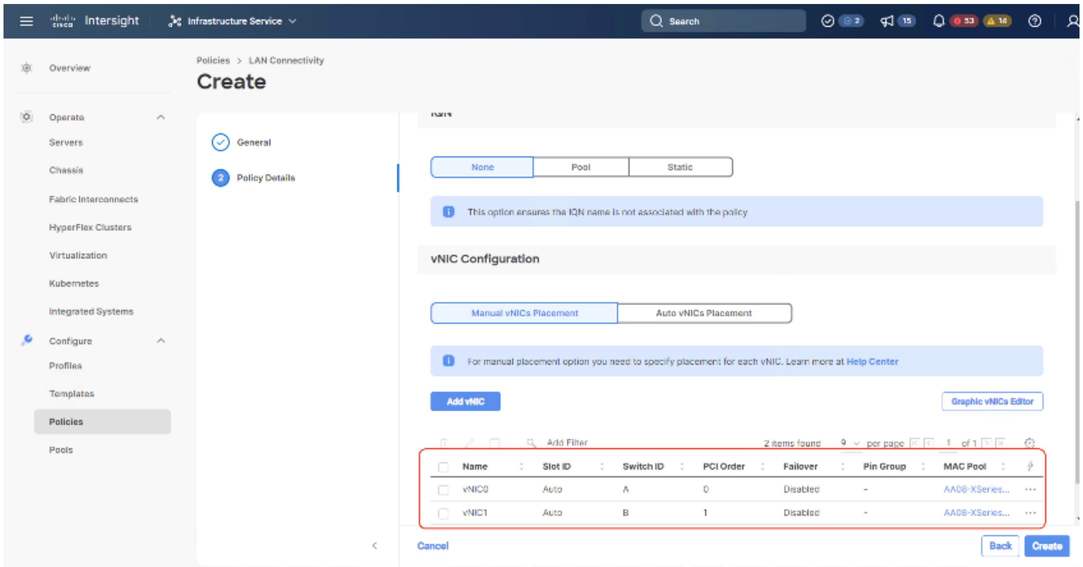
Selected Policy AA08-XSeries-QoS-x210c

Ethernet Adapter *

Selected Policy AA08-XSeries-eth-adapter-x210C

iSCSI Boot

Step 17. Ensure the LAN connectivity Policy is created as shown below with 2x vNIC and click Create.



IQN

This option ensures the IQN name is not associated with the policy

vNIC Configuration

Manual vNICs Placement | Auto vNICs Placement

For manual placement option you need to specify placement for each vNIC. Learn more at Help Center

Name	Slot ID	Switch ID	PCI Order	Failover	Pin Group	MAC Pool
vNIC0	Auto	A	0	Disabled	-	AA08-XSeries...
vNIC1	Auto	B	1	Disabled	-	AA08-XSeries...

Create Server Profile

Procedure 1. Create Server Profile Template

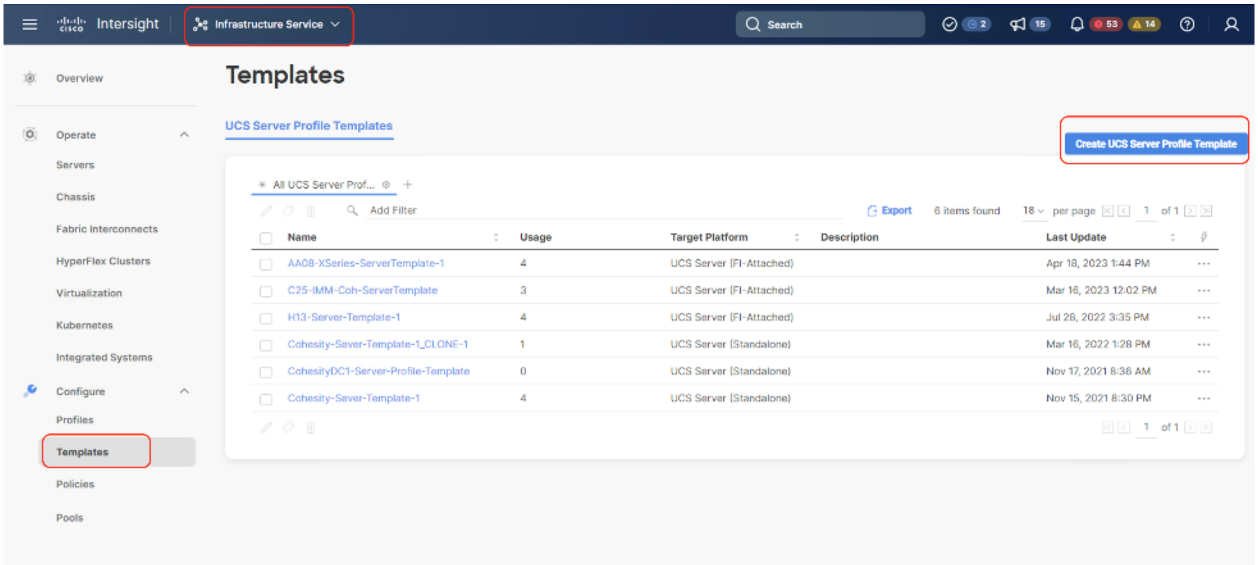
A server profile template enables resource management by simplifying policy alignment and server configuration. All the policies created in previous section would be attached to Server Profile Template. You can derive Server Profiles from templates and attach to X21c nodes deployed for Cohesity. For more information, go to: https://www.intersight.com/help/saas/features/servers/configure#server_profiles

The pools and policies attached to Server Profile Template are listed in Table 17.

Table 17. Policies required for Server profile template

Pools	Compute Policies	Network Policies	Management Policies
KVM Management IP Pool	BIOS Policy	LAN Connectivity Policy	IMC Access Policy
MAC Pool for Fabric A/B	Boot Order Policy	Ethernet Network Group Policy	IPMI Over LAN Policy
UUID Pool	Power Policy	Ethernet Network Control Policy	Local User Policy
	Virtual Media	Ethernet QoS Policy	Serial Over LAN Policy
		Ethernet Adapter Policy	Virtual KVM Policy

Step 1. Click Infrastructure Service, select Templates, and click Create UCS Server Profile Template.



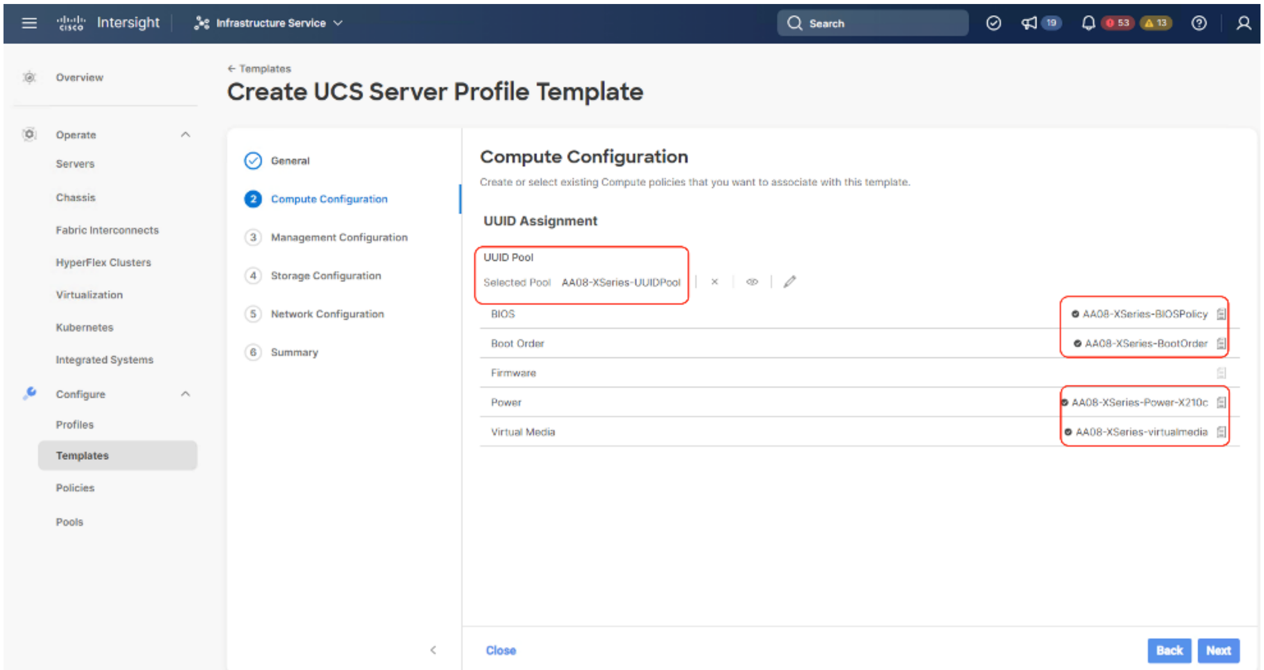
Templates

UCS Server Profile Templates

Name	Usage	Target Platform	Description	Last Update
AA08-XSeries-ServerTemplate-1	4	UCS Server (FI-Attached)		Apr 18, 2023 1:44 PM
C25-IMM-Coh-ServerTemplate	3	UCS Server (FI-Attached)		Mar 16, 2023 12:02 PM
H13-Server-Template-1	4	UCS Server (FI-Attached)		Jul 28, 2022 3:35 PM
Cohesity-Sever-Template-1_CLONE-1	1	UCS Server (Standalone)		Mar 16, 2022 1:28 PM
CohesityDC1-Server-Profile-Template	0	UCS Server (Standalone)		Nov 17, 2021 8:36 AM
Cohesity-Sever-Template-1	4	UCS Server (Standalone)		Nov 15, 2021 8:30 PM

Step 2. Name the Server Profile Template, select UCS Sever (FI-Attached) and click Next.

Step 3. Select UUID Pool and all Compute Policies created in the previous section. Click Next.



Create UCS Server Profile Template

Compute Configuration

Create or select existing Compute policies that you want to associate with this template.

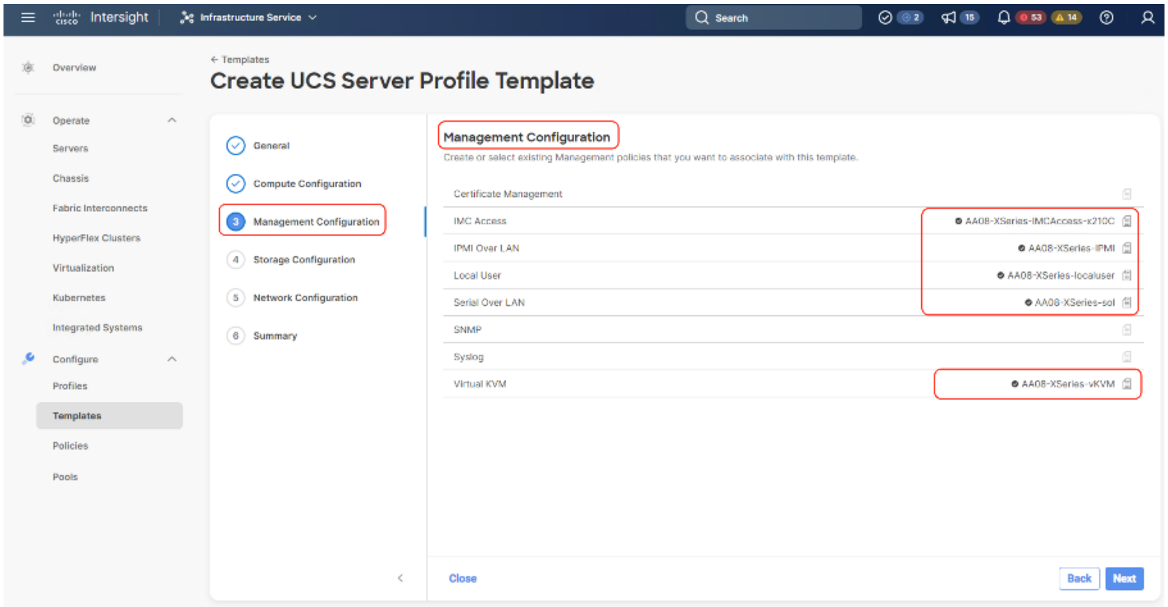
UUID Assignment

UUID Pool

Selected Pool AA08-XSeries-UUIDPool

BIOS	AA08-XSeries-BIOSPolicy
Boot Order	AA08-XSeries-BootOrder
Firmware	
Power	AA08-XSeries-Power-X210c
Virtual Media	AA08-XSeries-virtualmedia

Step 4. Select all Management Configuration Policies and attach to the Server Profile Template.



← Templates

Create UCS Server Profile Template

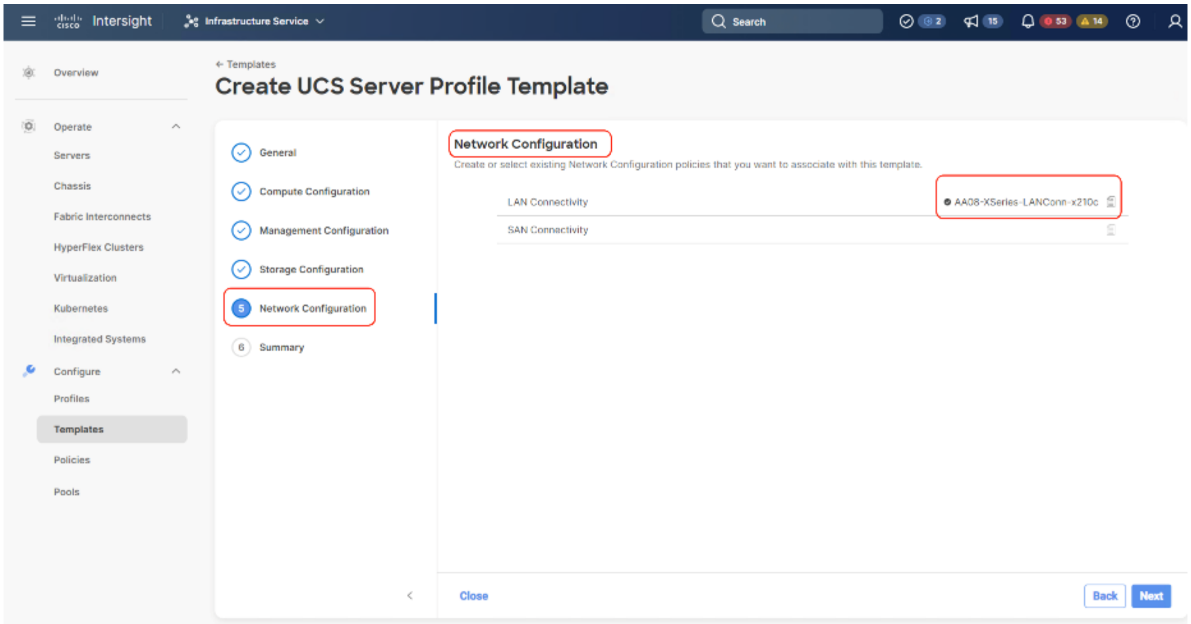
Management Configuration

Create or select existing Management policies that you want to associate with this template.

Certificate Management	
IMC Access	AA08-XSeries-IMCAccess-x210C
IPMI Over LAN	AA08-XSeries-IPMI
Local User	AA08-XSeries-localuser
Serial Over LAN	AA08-XSeries-sol
SNMP	
Syslog	
Virtual KVM	AA08-XSeries-vKVM

Step 5. Skip Storage Polices and click Next.

Step 6. Under Network Configuration, select the LAN connectivity Policy created in the previous section and click Next.



← Templates

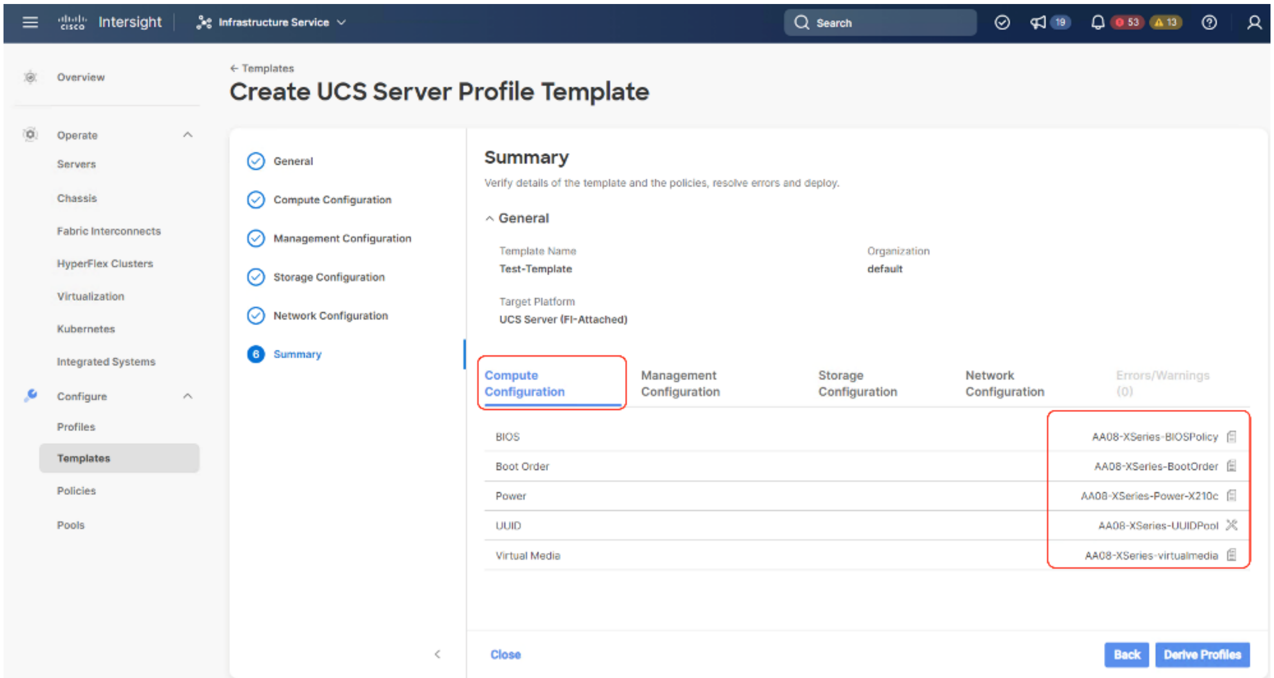
Create UCS Server Profile Template

Network Configuration

Create or select existing Network Configuration policies that you want to associate with this template.

LAN Connectivity	AA08-XSeries-LANConn-x210c
SAN Connectivity	

Step 7. Verify the summary and click Close. This completes the creation of Server Profiles. The details of the policies attached to the Server Profile Template are detailed below.



Create UCS Server Profile Template

Summary

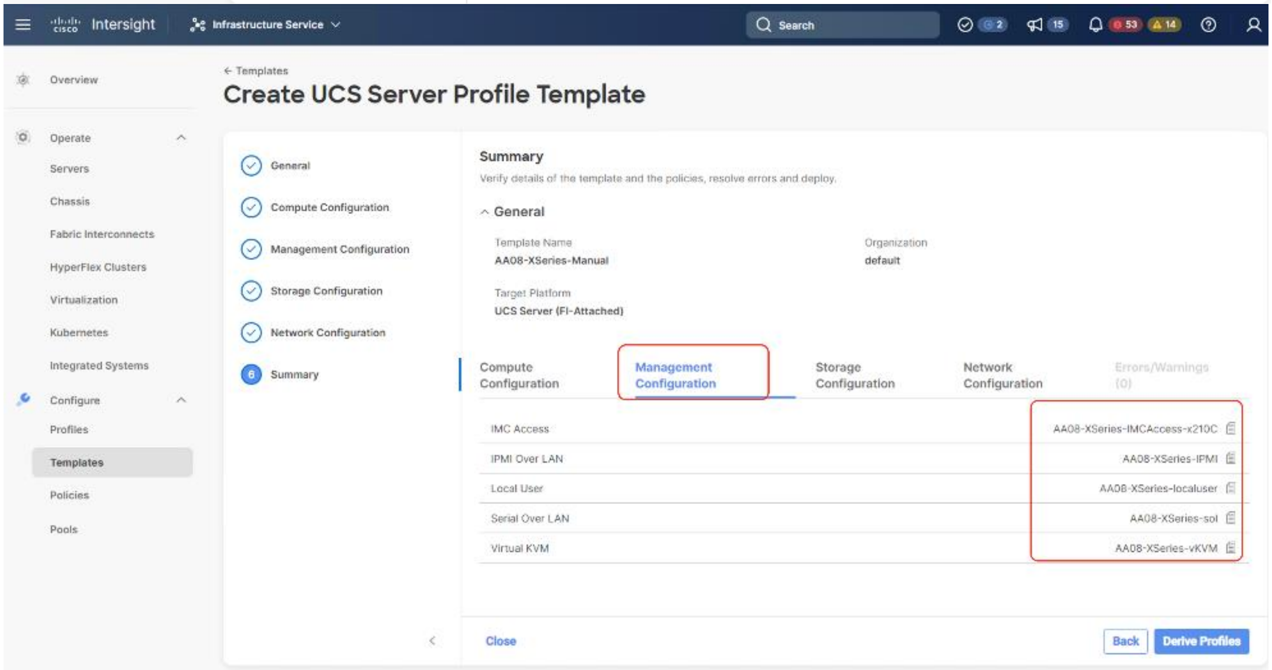
Verify details of the template and the policies, resolve errors and deploy.

General

Template Name Test-Template	Organization default
Target Platform UCS Server (FI-Attached)	

Compute Configuration | Management Configuration | Storage Configuration | Network Configuration | Errors/Warnings (0)

BIOS	AA08-XSeries-BIOSPolicy
Boot Order	AA08-XSeries-BootOrder
Power	AA08-XSeries-Power-X210c
UUID	AA08-XSeries-UUIDPool
Virtual Media	AA08-XSeries-virtualmedia



Create UCS Server Profile Template

Summary

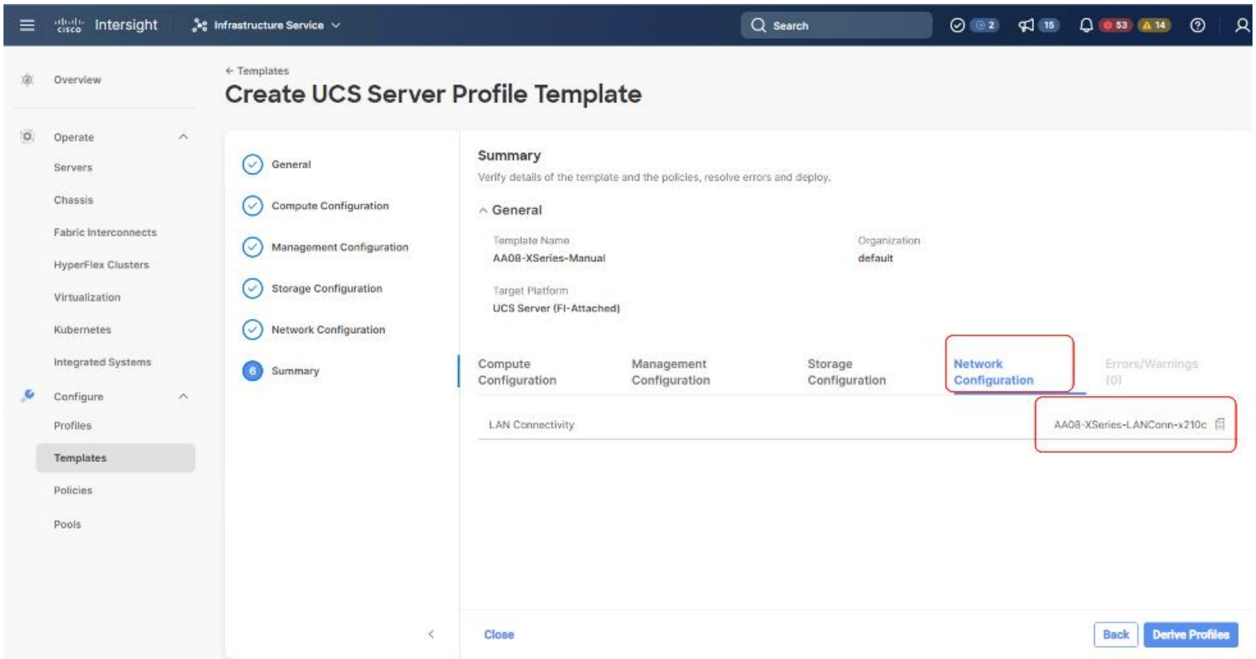
Verify details of the template and the policies, resolve errors and deploy.

General

Template Name AA08-XSeries-Manual	Organization default
Target Platform UCS Server (FI-Attached)	

Compute Configuration | Management Configuration | Storage Configuration | Network Configuration | Errors/Warnings (0)

IMC Access	AA08-XSeries-IMCAccess-x210C
IPMI Over LAN	AA08-XSeries-IPMI
Local User	AA08-XSeries-localuser
Serial Over LAN	AA08-XSeries-sol
Virtual KVM	AA08-XSeries-vKVM



Intersight | Infrastructure Service | Search

Overview

Operate
- Servers
- Chassis
- Fabric Interconnects
- HyperFlex Clusters
- Virtualization
- Kubernetes
- Integrated Systems

Configure
- Profiles
- Templates
- Policies
- Pools

← Templates

Create UCS Server Profile Template

1. General
2. Compute Configuration
3. Management Configuration
4. Storage Configuration
5. Network Configuration
6. Summary

Summary

Verify details of the template and the policies, resolve errors and deploy.

^ General

Template Name: AA08-XSeries-Manual

Organization: default

Target Platform: UCS Server (FI-Attached)

Compute Configuration | Management Configuration | Storage Configuration | **Network Configuration** | Errors/Warnings (0)

LAN Connectivity: AA08-XSeries-LANConn-x210c

Close | Back | Derive Profiles

Ansible Automation Server Template

This section describes the automated creation of the Server Profile Template validated for Cisco UCS X210c nodes certified for the Cohesity Data Cloud. The deployment is automated using Red Hat Ansible playbooks available in the Cisco UCS Solutions GitHub repository. The automation will focus on the Day0 installation of Cisco UCS Server Profile Templates.

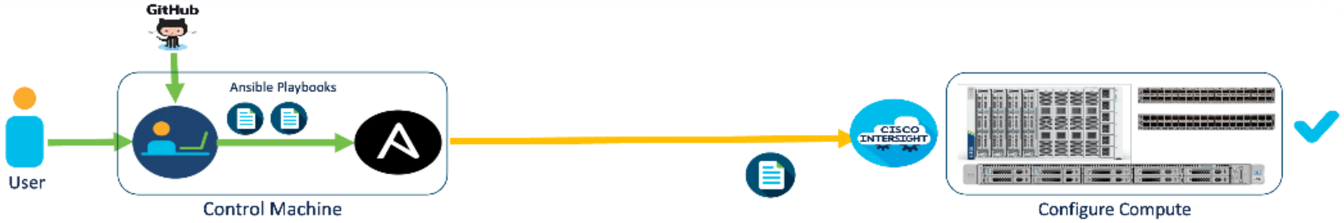
Note: Make sure the Domain Profile and Chassis Profile are already created and deployed.

The ansible automation creates a Server Profile Template attached to the Server Pools and Policies. These Server Pools and Policies will be created as part of automation. For more information, go to: https://developer.cisco.com/codeexchange/github/repo/ucs-compute-solutions/intersight_cohesity_xseries_ansible/

- Pools: KVM Management IP Pool, MAC Pool and UUID Pool
- Compute policies: Basic input/output system (BIOS), boot order, Power, and virtual media policies
- Network policies: Adapter configuration and LAN policies

  The LAN connectivity policy requires you to create an Ethernet network group policy, Ethernet network control policy, Ethernet QoS policy and Ethernet adapter policy
- Management policies: IMC Access Policy, Intelligent Platform Management Interface (IPMI) over LAN; local user; Serial over LAN (SOL); Virtual Media Policy

Figure 15. Overview of the automation process



Setup Information

Table 18 lists the configuration parameters.

Table 18. Configuration Parameters

Variable	Variable Name	Value	Additional Info
Git Hub Repo	-	https://github.com/ucs-compute-solutions/intersight_cohesity_xseries_ansible	
Variable need to be changed and require input		Variable that requires customer inputs are part of group_vars/	
Variable that does not typically require customer input (for example, descriptions and so on)		role_name/defauls/main.yml	

Prerequisites for the Ansible Playbook

Procedure 1. Prerequisite – Setup an Ansible Control Node running MacOS

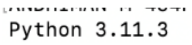
Note: The Ansible workstation is running MacOS in this setup.

To install on other operating systems, see: https://docs.ansible.com/ansible/latest/installation_guide/installation_distros.html

For additional information, see the Ansible Installation Guide: https://docs.ansible.com/ansible/latest/installation_guide/intro_installation.html#

Step 1. Ansible control node requires Python 3.8 or higher. Verify if it is already installed.

```
$ python3 -V
```



```
Python 3.11.3
```

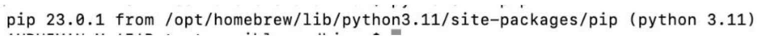
```
If Python is not installed or needs to be upgrade, use the commands below to install it.
$ brew install python3
```

-OR-

```
$ brew upgrade python3
```

Step 2. Verify that you have the Python package manager (pip). The python installation should automatically install pip.

```
$ python3 -m pip -V
```



```
pip 23.0.1 from /opt/homebrew/lib/python3.11/site-packages/pip (python 3.11)
```

Step 3. If pip is not installed or needs to be upgraded, run the following commands.

```
$ curl https://bootstrap.pypa.io/get-pip.py -o get-pip.py
$ python3 get-pip.py
```

-OR-

```
$ pip3 install --upgrade pip
```

Step 4. (Optional) Create Virtual Environment (venv) using Python and activate it for use.

```
$ python3 -m venv <venv_name>
$ python3 -m venv venv1
$ source ./venv1/bin/activate
```

To deactivate: `deactivate`

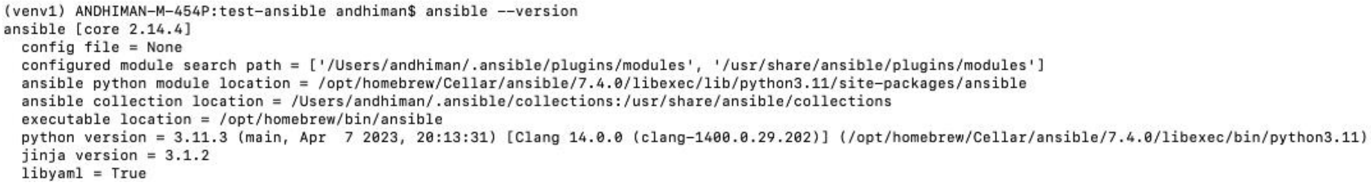
Create aliases (example): alias switchto_venv=‘source ./venv1/bin/activate’

Step 5. Install Ansible on workstation in virtual environment (optional); other useful commands are provided.

```
(venv1)$ pip install ansible              # not necessary to specify python version in venv
(venv1)$ which ansible
(venv1)$ ansible --version
(venv1)$ ansible -h
(venv1)$ pip install --upgrade ansible
```

Step 6. Verify the path and version of python is what you want Ansible to use:

```
(venv1)$ ansible --version
```



```
(venv1) ANDHIMAN-M-454P:test-ansible andhiman$ ansible --version
ansible [core 2.14.4]
  config file = None
  configured module search path = ['/Users/andhiman/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /opt/homebrew/Cellar/ansible/7.4.0/libexec/lib/python3.11/site-packages/ansible
  ansible collection location = /Users/andhiman/.ansible/collections:/usr/share/ansible/collections
  executable location = /opt/homebrew/bin/ansible
  python version = 3.11.3 (main, Apr  7 2023, 20:13:31) [Clang 14.0.0 (clang-1400.0.29.202)] (/opt/homebrew/Cellar/ansible/7.4.0/libexec/bin/python3.11)
  jinja version = 3.1.2
  libyaml = True
```

Step 7. Install GIT. It might already be installed on MacOS through other tools. Otherwise install git as follows:

```
(venv1) $ brew install git                # not necessary to execute this in venv
```

Step 8. Grep for intersight ansible collection:

```
(venv1) ANDHIMAN-M-454P:intersight_cohesity_xseries_ansible andhiman$ ansible-galaxy
collection list | grep intersight
cisco.intersight              1.0.24
```

Step 9. Upgrade or install the latest cisco.intersight ansible collection:

```
(venv1) ANDHIMAN-M-454P:intersight_cohesity_xseries_ansible andhiman$ ansible-galaxy
collection install cisco.intersight
Starting galaxy collection install process
Process install dependency map
Starting collection install process
Downloading https://galaxy.ansible.com/download/cisco-intersight-1.0.27.tar.gz to
/Users/andhiman/.ansible/tmp/ansible-local-62549d2f09vz2/tmpru15728y/cisco-intersight-
1.0.27-r1ubuagf
Installing 'cisco.intersight:1.0.27' to
'/Users/andhiman/.ansible/collections/ansible_collections/cisco/intersight'
cisco.intersight:1.0.27 was installed successfully
(venv1) ANDHIMAN-M-454P:intersight_cohesity_xseries_ansible andhiman
```

Setup and Configure Ansible Playbook

Procedure 1. Git Hub repository for Cisco UCS Server Templates

To access the Ansible playbooks in the GitHub repository (repo), clone the Git Hub repo as outlined below. The cloning will create a completely new copy of the repo in the location specified on the Ansible workstation. The repo is located here: https://github.com/ucs-compute-solutions/intersight_cohesity_xseries_ansible directory.

Step 1. From the Ansible workstation, use a terminal console or command-line tool to create a directory for the project. The GitHub repo will be cloned to a sub-directory in this directory.

Step 2. Navigate to the newly created directory from the terminal window and execute the following command:

```
git clone https://github.com/ucs-compute-solutions/intersight_cohesity_xseries_ansible
```

Step 3. Navigate to the sub-directory.

Step 4. (Optional) Switch to the Python virtual environment using the command provided in the Setup Ansible Control Node deployment procedure earlier in the document.

Procedure 2. Review and modify the Ansible files for provisioning the X210C nodes for Cohesity

Ansible uses variables files (**group_vars, host_vars**), and playbooks to automate the provisioning. The variables files contain the configuration parameters. The inventory files and variable files will need to be modified for each environment.

Step 1. Edit the group_vars/all.yml with the parameters provided below. These parameters/values are specific to the environment where this configuration is deployed.

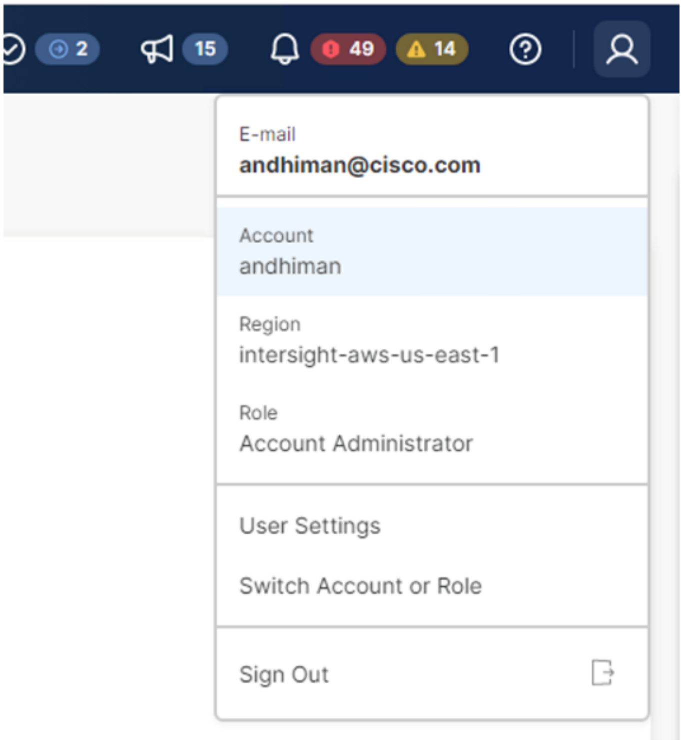
Table 19. Configuration Parameters (group_vars/all.yml)

Variable	Variable Name	Value	Additional Info
Intersight API Key ID	api_key_id		https://community.cisco.com/t5/data-center-and-cloud-knowledge-base/intersight-api-overview/ta-p/3651994
Intersight Secret Key location	api_private_key		Location of Secret Key generated through Intersight Account
Organization Name	org_name	default	Intersight Organization Name. Please make sure it already exists.
Prefix to name of Server Pools, Server Policies and Server Template	prefix	xxx	Prefix added to the pool/policy/profile configuration to easily identify items created by Ansible
UUID Pool	name_of_uuid_pool	1521-1530	
	uuid_prefix	AA080000-0000-0001	The UUID prefix must be in hexadecimal format xxxxxxxx-xxxx-xxxx
	uuid_size	16	VPC Leaf switch pair
	uuid_from	AA08-000000000001	Starting UUID suffix of the block must be in hexadecimal format xxxx-xxxxxxxxxxxx.
IP Pool	ip_pool_start_for_management_access	10.108.0.110	IP Start Range
	size_of_ip_pool_for_management_access	8	Size of IP Pool, One IN-Band IP per X210C node
	gateway_mgmt	10.108.0.254	
	netmask_mgmt	255.255.255.0	
	primary_dns_mgmt		

Variable	Variable Name	Value	Additional Info
	secondary_dns_mgmt		
MAC Pool	mac_pool_start_on_fi_a	00:B4:AA:03:0A:00	Starting address of the block must be in hexadecimal format xx:xx:xx:xx:xx:xx. To ensure uniqueness of MACs in the LAN fabric, you are strongly encouraged to use the following MAC prefix 00:25:B5:xx:xx:xx.
	size_of_mac_pool_on_fi_a	64	
	mac_pool_start_on_fi_b	00:B4:AA:03:0B:00	Starting address of the block must be in hexadecimal format xx:xx:xx:xx:xx:xx. To ensure uniqueness of MACs in the LAN fabric, you are strongly encouraged to use the following MAC prefix 00:25:B5:xx:xx:xx.
	size_of_mac_pool_on_fi_b	64	
vlan_for_cimc_access	vlan_for_cimc_access	1080	VLAN for In-Band Management IP (KVM Access)
Local User Policy	name_of_local_user	kvm-user	Username to access KVM (Role:Admin)
	password_for_local_user		
Ethernet Network Group Policy	native_vlan_for_mgmt_vnic	1081	VLAN for Cohesity Data network (marked as native)
	allowed_vlans_for_mgmt_vnic	1080,1081,1082	Allowed VLANs on cohesity Network

Step 2. Generate the API Key and SecretFile needed to access the API from Python or other remote scripting tools.

Step 3. To generate API keys, navigate to the user profile in the Cisco Intersight UI.



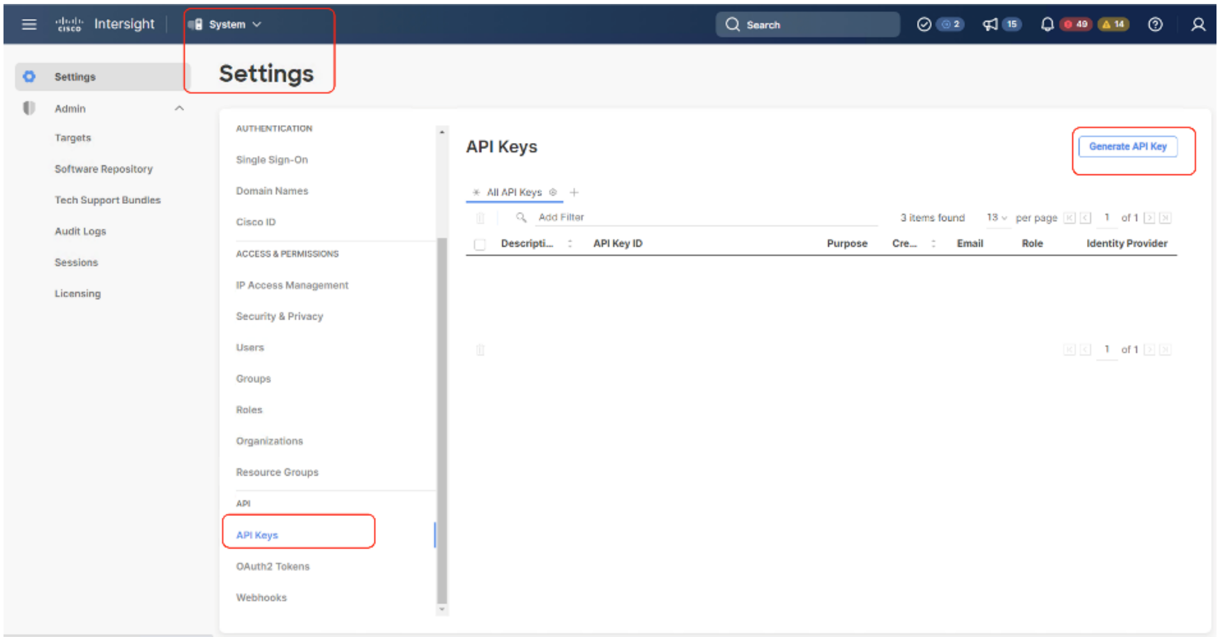
E-mail
andhiman@cisco.com

Account
andhiman

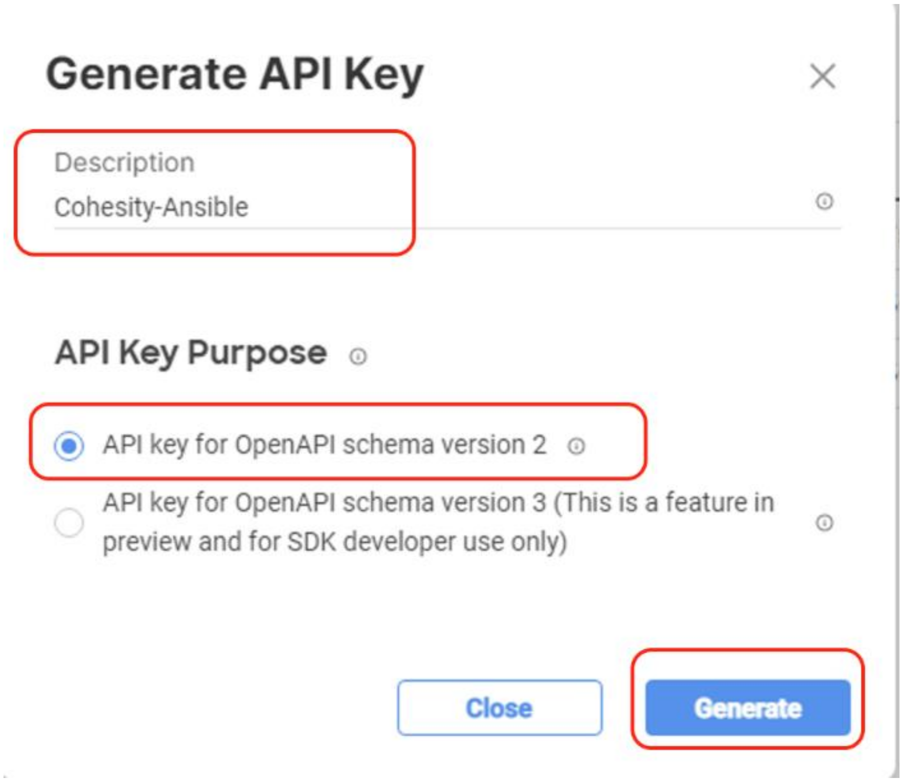
Region
intersight-aws-us-east-1

Role
Account Administrator

Step 4. On the Settings Screen, select API Keys and click Generate API Key.



Step 5. From the Generate API Key screen, add a description to the Key. Select API Key for OpenAPI schema version 2 and click Generate.



Generate API Key

Description

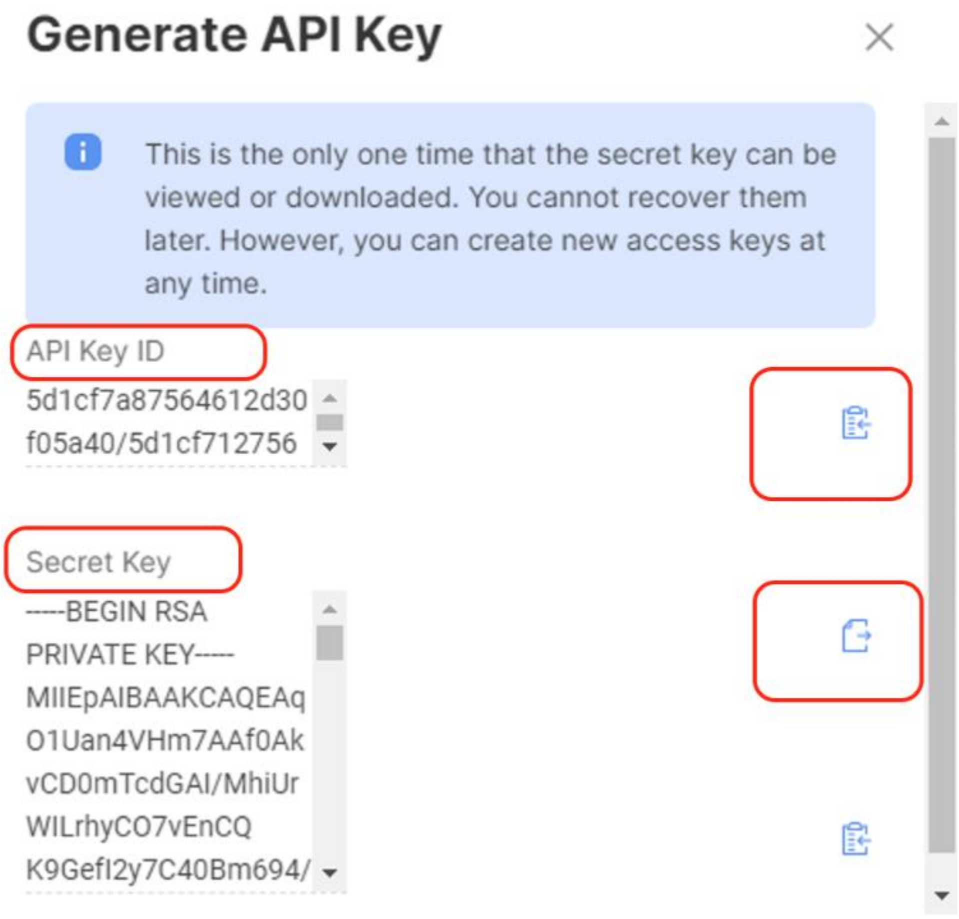
Cohesity-Ansible

API Key Purpose

● API key for OpenAPI schema version 2

○ API key for OpenAPI schema version 3 (This is a feature in preview and for SDK developer use only)

Step 6. Copy the API Key and save the secret Key to a location accessible from the system where the Ansible playbooks are executed.



Generate API Key

This is the only one time that the secret key can be viewed or downloaded. You cannot recover them later. However, you can create new access keys at any time.

API Key ID

```
5d1cf7a87564612d30
f05a40/5d1cf712756
```

Secret Key

```
-----BEGIN RSA
PRIVATE KEY-----
MIIEpAIBAAKCAQEAq
O1Uan4VHm7AAf0Ak
vCD0mTcdGAI/MhiUr
WILrhyCO7vEnCQ
K9Gefl2y7C40Bm694/
```

Step 7. Edit the group_vars/all.yml with the new API Key and SecretKey File location.

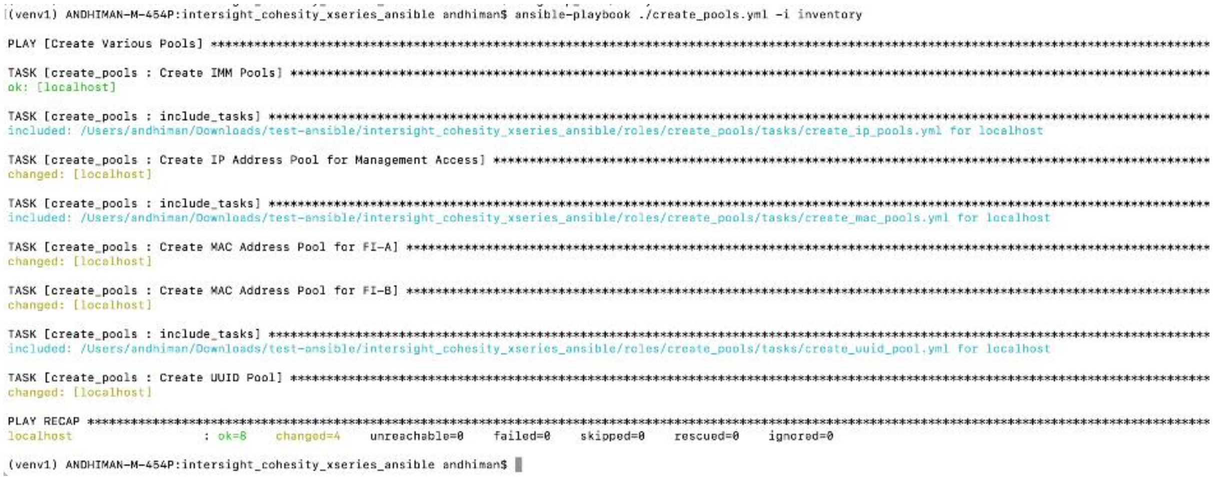
Execute Ansible Playbook

Procedure 1. Execute Ansible Playbook to create Pools

Note: In the event the IP Pool, MAC Pool and UUID Pools, are already created, you should not run create_pools.yml. Ensure you enter the correct name of these Pools in all.yml and proceed to creating Server Policies.

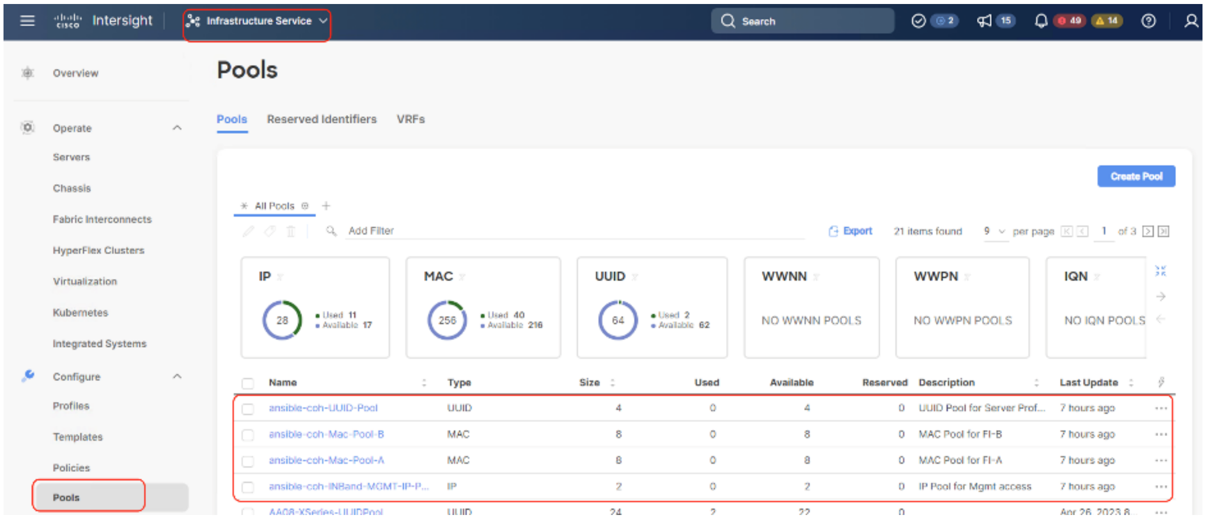
Step 1. Edit the variables group_vars/all.yml as defined in Table 19.

Step 2. Run the ansible-playbook ./create_pools.yml -i inventory.



```
(venv1) ANDHIMAN-M-454P:intersight_cohesity_xseries_ansible andhiman$ ansible-playbook ./create_pools.yml -i inventory

PLAY [Create Various Pools] ******************************************************************************************************

TASK [create_pools : Create IMM Pools] *******************************************************************************************
ok: [localhost]

TASK [create_pools : include_tasks] **********************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_pools/tasks/create_ip_pools.yml for localhost

TASK [create_pools : Create IP Address Pool for Management Access] ***************************************************************
changed: [localhost]

TASK [create_pools : include_tasks] **********************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_pools/tasks/create_mac_pools.yml for localhost

TASK [create_pools : Create MAC Address Pool for FI-A] ***************************************************************************
changed: [localhost]

TASK [create_pools : Create MAC Address Pool for FI-B] ***************************************************************************
changed: [localhost]

TASK [create_pools : include_tasks] **********************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_pools/tasks/create_uuid_pool.yml for localhost

TASK [create_pools : Create UUID Pool] *******************************************************************************************
changed: [localhost]

PLAY RECAP ***********************************************************************************************************************
localhost                  : ok=8    changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

(venv1) ANDHIMAN-M-454P:intersight_cohesity_xseries_ansible andhiman$ 
```

Step 3. When the Ansible playbook to create pools is executed successfully, confirm the created pools in Cisco Intersight.



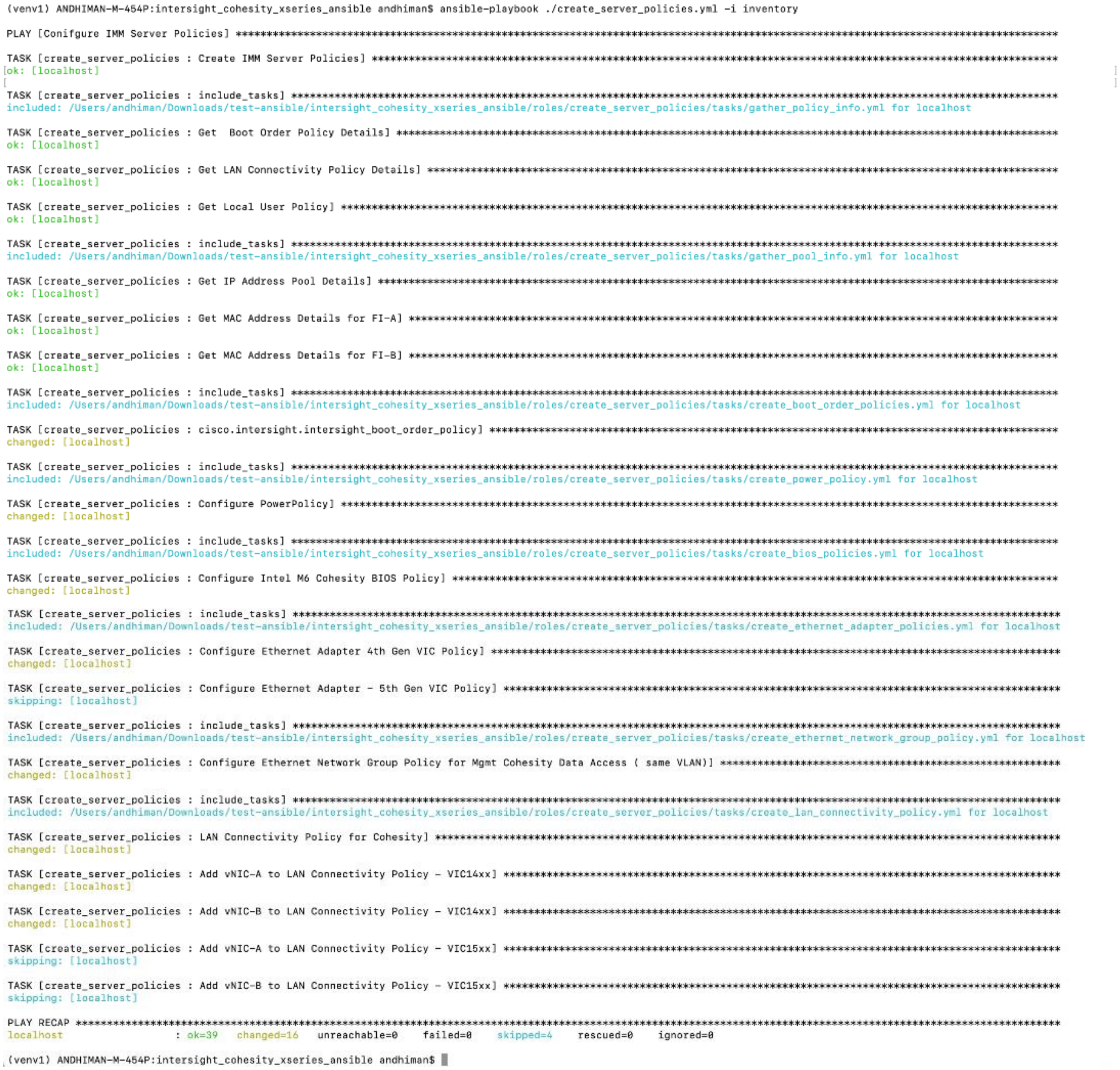
Name	Type	Size	Used	Available	Reserved	Description	Last Update
ansible-coh-UUID-Pool	UUID	4	0	4	0	UUID Pool for Server Prof...	7 hours ago
ansible-coh-Mac-Pool-B	MAC	8	0	8	0	MAC Pool for FI-B	7 hours ago
ansible-coh-Mac-Pool-A	MAC	8	0	8	0	MAC Pool for FI-A	7 hours ago
ansible-coh-INBand-MGMT-IP-P...	IP	2	0	2	0	IP Pool for Mgmt access	7 hours ago
AA08-XSeries-UUIDPool	UUID	24	2	22	0		Apr 26, 2023 8...

Procedure 2. Execute Ansible Playbook to create Server Policies

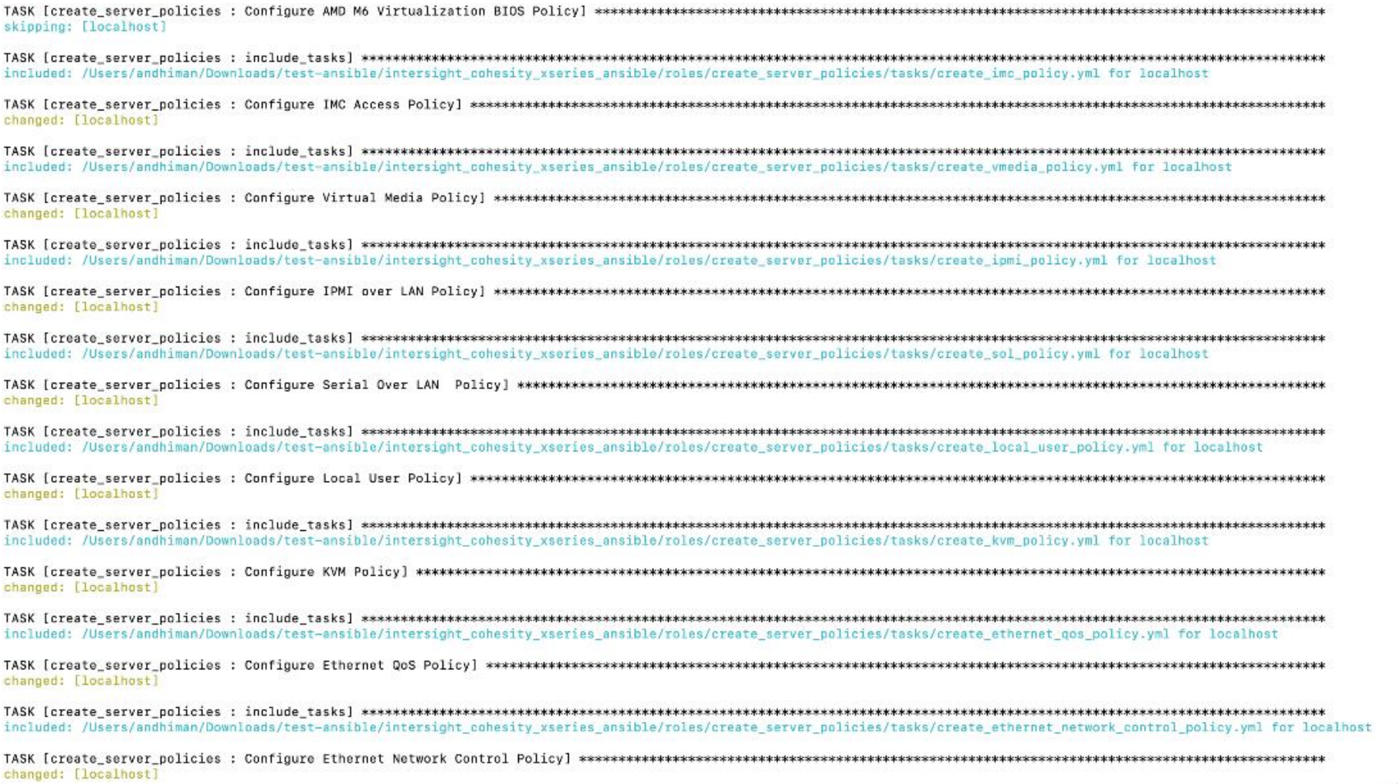
Note: In the event the IP Pool, MAC Pool and UUID Pools are already created, do not run create_pools.yml. Make sure to enter the correct name of these pools in all.yml and proceed to creating Server Policies.

Step 1. Edit the variables group_vars/all.yml as defined in the table above. Ignore if the file is already updated.

Step 2. Run ansible-playbook ./create_server_policies.yml -i inventory.

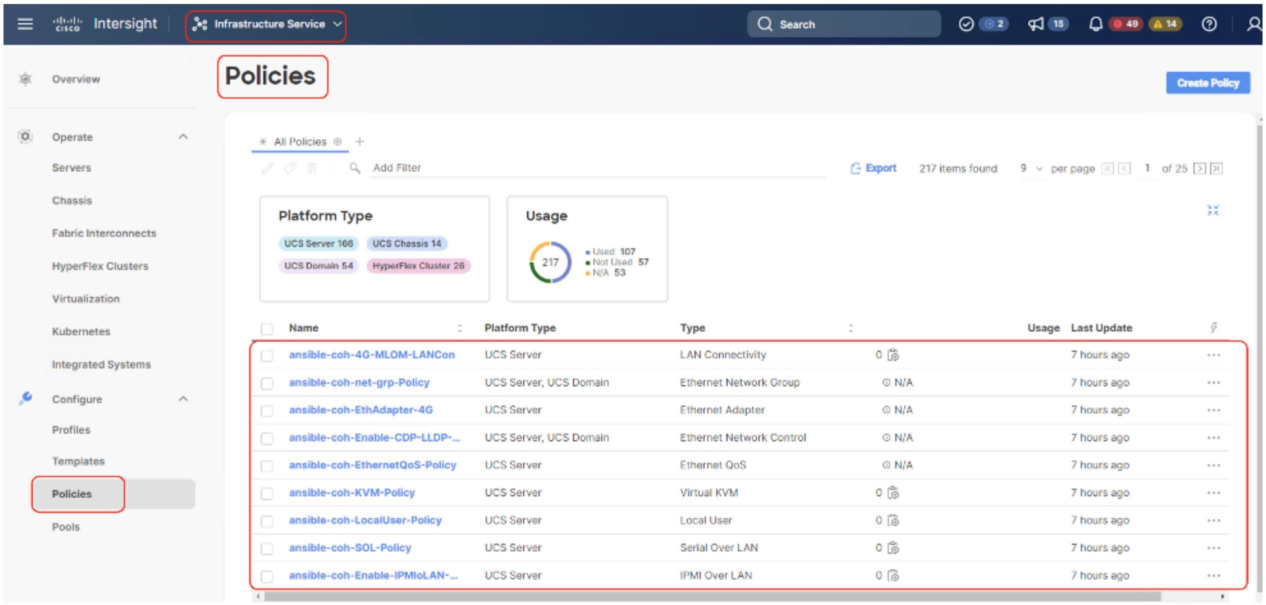


```
(venv1) ANDHIMAN-M-454P:intersight_cohesity_xseries_ansible andhiman$ ansible-playbook ./create_server_policies.yml -i inventory

PLAY [Conifgure IMM Server Policies] ************************************************************************************************************************************

TASK [create_server_policies : Create IMM Server Policies] **************************************************************************************************************
ok: [localhost]

TASK [create_server_policies : include_tasks] ***************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/gather_policy_info.yml for localhost

TASK [create_server_policies : Get  Boot Order Policy Details] **********************************************************************************************************
ok: [localhost]

TASK [create_server_policies : Get LAN Connectivity Policy Details] *****************************************************************************************************
ok: [localhost]

TASK [create_server_policies : Get Local User Policy] *******************************************************************************************************************
ok: [localhost]

TASK [create_server_policies : include_tasks] ***************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/gather_pool_info.yml for localhost

TASK [create_server_policies : Get IP Address Pool Details] *************************************************************************************************************
ok: [localhost]

TASK [create_server_policies : Get MAC Address Details for FI-A] ********************************************************************************************************
ok: [localhost]

TASK [create_server_policies : Get MAC Address Details for FI-B] ********************************************************************************************************
ok: [localhost]

TASK [create_server_policies : include_tasks] ***************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_boot_order_policies.yml for localhost

TASK [create_server_policies : cisco.intersight.intersight_boot_order_policy] *******************************************************************************************
changed: [localhost]

TASK [create_server_policies : include_tasks] ***************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_power_policy.yml for localhost

TASK [create_server_policies : Configure PowerPolicy] *******************************************************************************************************************
changed: [localhost]

TASK [create_server_policies : include_tasks] ***************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_bios_policies.yml for localhost

TASK [create_server_policies : Configure Intel M6 Cohesity BIOS Policy] *************************************************************************************************
changed: [localhost]

TASK [create_server_policies : include_tasks] ***************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_ethernet_adapter_policies.yml for localhost

TASK [create_server_policies : Configure Ethernet Adapter 4th Gen VIC Policy] *******************************************************************************************
changed: [localhost]

TASK [create_server_policies : Configure Ethernet Adapter - 5th Gen VIC Policy] *****************************************************************************************
skipping: [localhost]

TASK [create_server_policies : include_tasks] ***************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_ethernet_network_group_policy.yml for localhost

TASK [create_server_policies : Configure Ethernet Network Group Policy for Mgmt Cohesity Data Access ( same VLAN)] ******************************************************
changed: [localhost]

TASK [create_server_policies : include_tasks] ***************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_lan_connectivity_policy.yml for localhost

TASK [create_server_policies : LAN Connectivity Policy for Cohesity] ****************************************************************************************************
changed: [localhost]

TASK [create_server_policies : Add vNIC-A to LAN Connectivity Policy - VIC14xx] *****************************************************************************************
changed: [localhost]

TASK [create_server_policies : Add vNIC-B to LAN Connectivity Policy - VIC14xx] *****************************************************************************************
changed: [localhost]

TASK [create_server_policies : Add vNIC-A to LAN Connectivity Policy - VIC15xx] *****************************************************************************************
skipping: [localhost]

TASK [create_server_policies : Add vNIC-B to LAN Connectivity Policy - VIC15xx] *****************************************************************************************
skipping: [localhost]

PLAY RECAP **************************************************************************************************************************************************************
localhost                  : ok=39   changed=16   unreachable=0    failed=0    skipped=4    rescued=0    ignored=0

(venv1) ANDHIMAN-M-454P:intersight_cohesity_xseries_ansible andhiman$ █
```



```
TASK [create_server_policies : Configure AMD M6 Virtualization BIOS Policy] ****************************************************************************************************
skipping: [localhost]

TASK [create_server_policies : include_tasks] **************************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_imc_policy.yml for localhost

TASK [create_server_policies : Configure IMC Access Policy] ********************************************************************************************************************
changed: [localhost]

TASK [create_server_policies : include_tasks] **************************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_vmedia_policy.yml for localhost

TASK [create_server_policies : Configure Virtual Media Policy] *****************************************************************************************************************
changed: [localhost]

TASK [create_server_policies : include_tasks] **************************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_ipmi_policy.yml for localhost

TASK [create_server_policies : Configure IPMI over LAN Policy] *****************************************************************************************************************
changed: [localhost]

TASK [create_server_policies : include_tasks] **************************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_sol_policy.yml for localhost

TASK [create_server_policies : Configure Serial Over LAN  Policy] **************************************************************************************************************
changed: [localhost]

TASK [create_server_policies : include_tasks] **************************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_local_user_policy.yml for localhost

TASK [create_server_policies : Configure Local User Policy] ********************************************************************************************************************
changed: [localhost]

TASK [create_server_policies : include_tasks] **************************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_kvm_policy.yml for localhost

TASK [create_server_policies : Configure KVM Policy] ***************************************************************************************************************************
changed: [localhost]

TASK [create_server_policies : include_tasks] **************************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_ethernet_qos_policy.yml for localhost

TASK [create_server_policies : Configure Ethernet QoS Policy] ******************************************************************************************************************
changed: [localhost]

TASK [create_server_policies : include_tasks] **************************************************************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_policies/tasks/create_ethernet_network_control_policy.yml for localhost

TASK [create_server_policies : Configure Ethernet Network Control Policy] ******************************************************************************************************
changed: [localhost]
```

Step 3. When the Ansible playbook to create Server Policies is executed successfully, confirm the created Polices in Cisco Intersight.



Policies

217 items found 9 per page 1 of 25

Platform Type: UCS Server 166, UCS Chassis 14, UCS Domain 54, HyperFlex Cluster 26

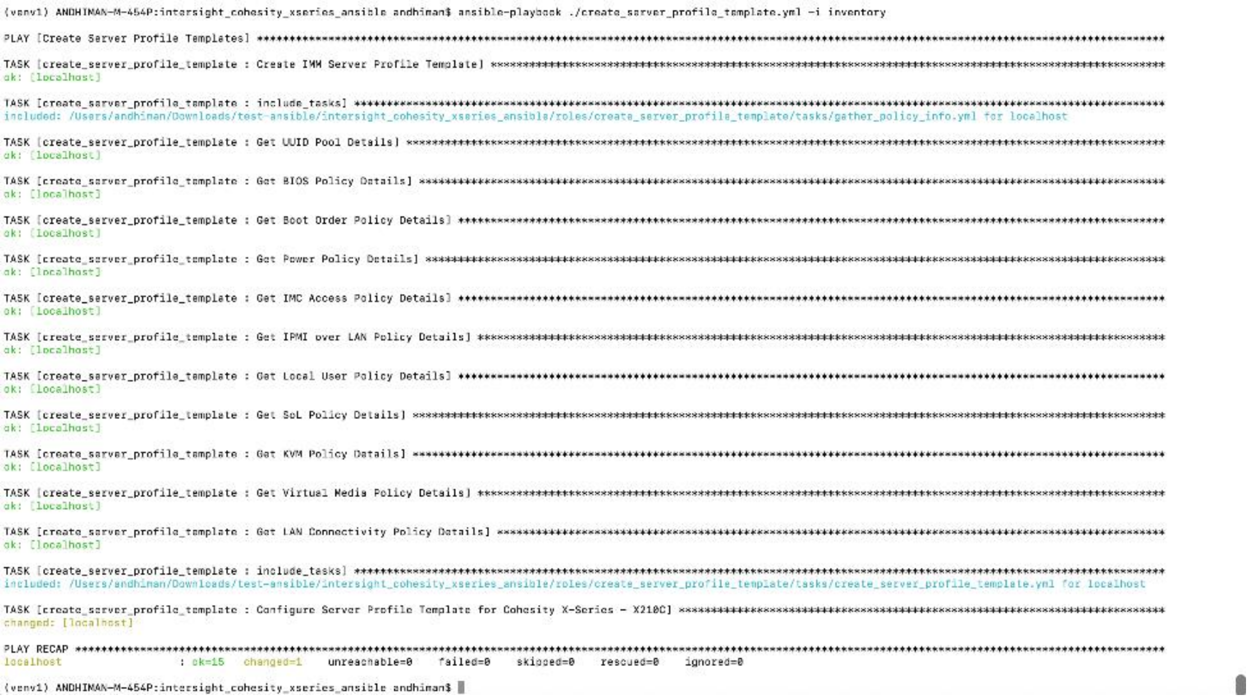
Usage: 217 — Used 107, Not Used 57, N/A 53

Name	Platform Type	Type	Usage	Last Update
ansible-coh-4G-MLOM-LANCon	UCS Server	LAN Connectivity	0	7 hours ago
ansible-coh-net-grp-Policy	UCS Server, UCS Domain	Ethernet Network Group	N/A	7 hours ago
ansible-coh-EthAdapter-4G	UCS Server	Ethernet Adapter	N/A	7 hours ago
ansible-coh-Enable-CDP-LLDP-...	UCS Server, UCS Domain	Ethernet Network Control	N/A	7 hours ago
ansible-coh-EthernetQoS-Policy	UCS Server	Ethernet QoS	N/A	7 hours ago
ansible-coh-KVM-Policy	UCS Server	Virtual KVM	0	7 hours ago
ansible-coh-LocalUser-Policy	UCS Server	Local User	0	7 hours ago
ansible-coh-SOL-Policy	UCS Server	Serial Over LAN	0	7 hours ago
ansible-coh-Enable-IPMIoLAN-...	UCS Server	IPMI Over LAN	0	7 hours ago

Procedure 3. Execute Ansible Playbook to create Server Profile Template for Cohesity X210c nodes

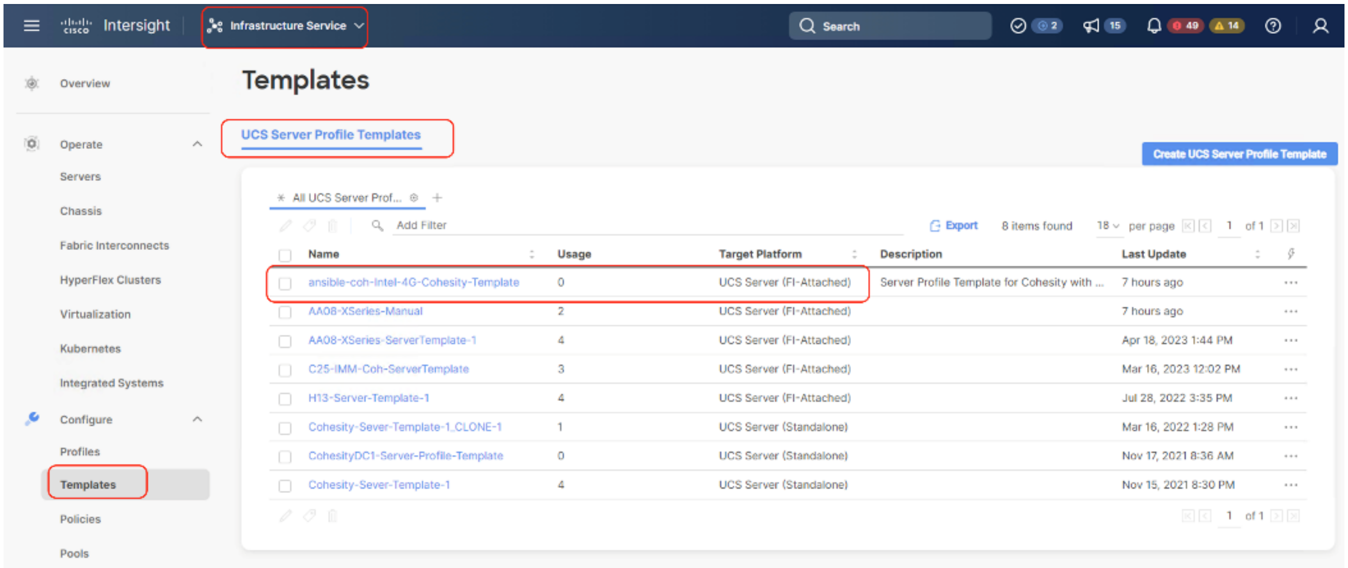
Step 1. Edit the variables group_vars/all.yml as defined in Table 19. Ignore if the file is already updated.

Step 2. Run ansible-playbook ./create_server_policies.yml -i inventory.



```
(venv1) ANDHIMAN-M-454P:intersight_cohesity_xseries_ansible andhiman$ ansible-playbook ./create_server_profile_template.yml -i inventory

PLAY [Create Server Profile Templates] ******************************************************************************************************

TASK [create_server_profile_template : Create IMM Server Profile Template] ******************************************************************
ok: [localhost]

TASK [create_server_profile_template : include_tasks] ***************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_profile_template/tasks/gather_policy_info.yml for localhost

TASK [create_server_profile_template : Get UUID Pool Details] *******************************************************************************
ok: [localhost]

TASK [create_server_profile_template : Get BIOS Policy Details] *****************************************************************************
ok: [localhost]

TASK [create_server_profile_template : Get Boot Order Policy Details] ***********************************************************************
ok: [localhost]

TASK [create_server_profile_template : Get Power Policy Details] ****************************************************************************
ok: [localhost]

TASK [create_server_profile_template : Get IMC Access Policy Details] ***********************************************************************
ok: [localhost]

TASK [create_server_profile_template : Get IPMI over LAN Policy Details] ********************************************************************
ok: [localhost]

TASK [create_server_profile_template : Get Local User Policy Details] ***********************************************************************
ok: [localhost]

TASK [create_server_profile_template : Get SoL Policy Details] ******************************************************************************
ok: [localhost]

TASK [create_server_profile_template : Get KVM Policy Details] ******************************************************************************
ok: [localhost]

TASK [create_server_profile_template : Get Virtual Media Policy Details] ********************************************************************
ok: [localhost]

TASK [create_server_profile_template : Get LAN Connectivity Policy Details] *****************************************************************
ok: [localhost]

TASK [create_server_profile_template : include_tasks] ***************************************************************************************
included: /Users/andhiman/Downloads/test-ansible/intersight_cohesity_xseries_ansible/roles/create_server_profile_template/tasks/create_server_profile_template.yml for localhost

TASK [create_server_profile_template : Configure Server Profile Template for Cohesity X-Series - X210C] *************************************
changed: [localhost]

PLAY RECAP **********************************************************************************************************************************
localhost                  : ok=15   changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

(venv1) ANDHIMAN-M-454P:intersight_cohesity_xseries_ansible andhiman$
```

Step 3. Verify the created Server Profile Template on Cisco Intersight Dashboard.



Templates

UCS Server Profile Templates

Create UCS Server Profile Template

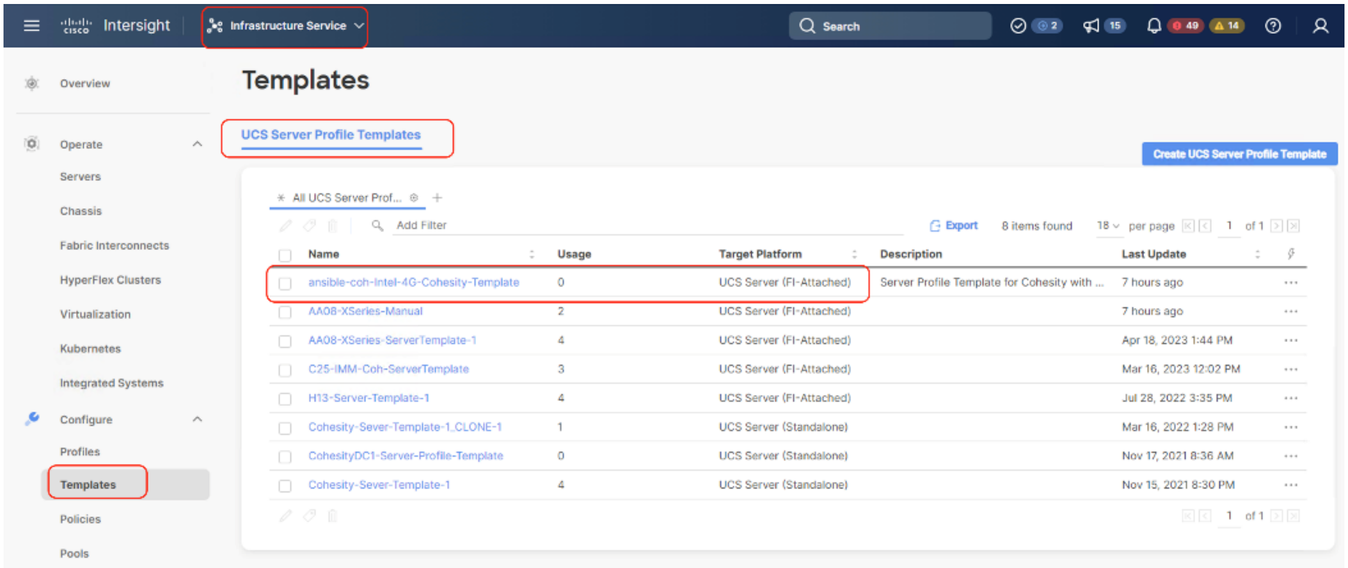
All UCS Server Prof... +

Add Filter

Export 8 items found 18 per page 1 of 1

□	Name	Usage	Target Platform	Description	Last Update	
□	ansible-coh-Intel-4G-Cohesity-Template	0	UCS Server (FI-Attached)	Server Profile Template for Cohesity with ...	7 hours ago	...
□	AA08-XSeries-Manual	2	UCS Server (FI-Attached)		7 hours ago	...
□	AA08-XSeries-ServerTemplate-1	4	UCS Server (FI-Attached)		Apr 18, 2023 1:44 PM	...
□	C25-IMM-Coh-ServerTemplate	3	UCS Server (FI-Attached)		Mar 16, 2023 12:02 PM	...
□	H13-Server-Template-1	4	UCS Server (FI-Attached)		Jul 28, 2022 3:35 PM	...
□	Cohesity-Sever-Template-1_CLONE-1	1	UCS Server (Standalone)		Mar 16, 2022 1:28 PM	...
□	CohesityDC1-Server-Profile-Template	0	UCS Server (Standalone)		Nov 17, 2021 8:36 AM	...
□	Cohesity-Sever-Template-1	4	UCS Server (Standalone)		Nov 15, 2021 8:30 PM	...

1 of 1



Name	Usage	Target Platform	Description	Last Update
ansible-coh-Intel-4G-Cohesity-Template	0	UCS Server (FI-Attached)	Server Profile Template for Cohesity with ...	7 hours ago
AA08-XSeries-Manual	2	UCS Server (FI-Attached)		7 hours ago
AA08-XSeries-ServerTemplate-1	4	UCS Server (FI-Attached)		Apr 18, 2023 1:44 PM
C25-IMM-Coh-ServerTemplate	3	UCS Server (FI-Attached)		Mar 16, 2023 12:02 PM
H13-Server-Template-1	4	UCS Server (FI-Attached)		Jul 28, 2022 3:35 PM
Cohesity-Sever-Template-1_CLONE-1	1	UCS Server (Standalone)		Mar 16, 2022 1:28 PM
CohesityDC1-Server-Profile-Template	0	UCS Server (Standalone)		Nov 17, 2021 8:36 AM
Cohesity-Sever-Template-1	4	UCS Server (Standalone)		Nov 15, 2021 8:30 PM

Install Cohesity on Cisco UCS X210c Nodes

Cohesity Data Cloud can be installed on Cohesity certified Cisco UCS X210c nodes with one of two options:

- Install OS through Intersight OS installation.

  This allows installing the Cohesity Data Cloud operating System through Cisco Intersight. You are required to have an Intersight Advantage license for this feature. The operating system resides on a local software repository as an OS Image Link configured in Cisco Intersight. The repository can be a HTTTPS, NFS or CIFS repository accessible through the KVM management network. This feature benefits in the following ways:

  - It allows the operating system installation simultaneously across several Cisco UCS X210c nodes provisioned for the Cohesity Data Cloud.
  - It reduces Day0 installation time by avoiding mounting the ISO as Virtual Media on the KVM console for each node deployed for Cohesity Data Cloud on each Cisco UCS X210c node.

- Install the OS by mounting ISO as virtual Media for each node.

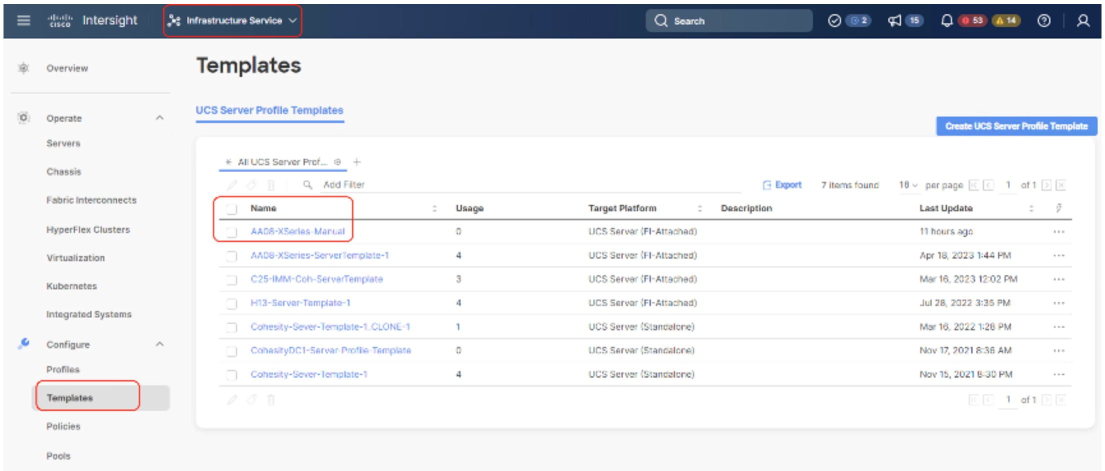
Derive and Deploy Server Profiles

Procedure 1. Derive and Deploy Server Profiles

In this procedure, Server Profiles are derived from Server Profile Template and deployed on Cisco UCS X210C nodes certified for the Cohesity Data Cloud.

Note: The Server Profile Template specific to the Cohesity Data Cloud were configured in the previous section. As mentioned, the Server Profile Template can be created through the Cohesity Ansible Automation playbook or through the Manual creation of Server Policies and Server Template.

Step 1. Select Infrastructure Service, then select Templates and identify the Server Template created in the previous section.



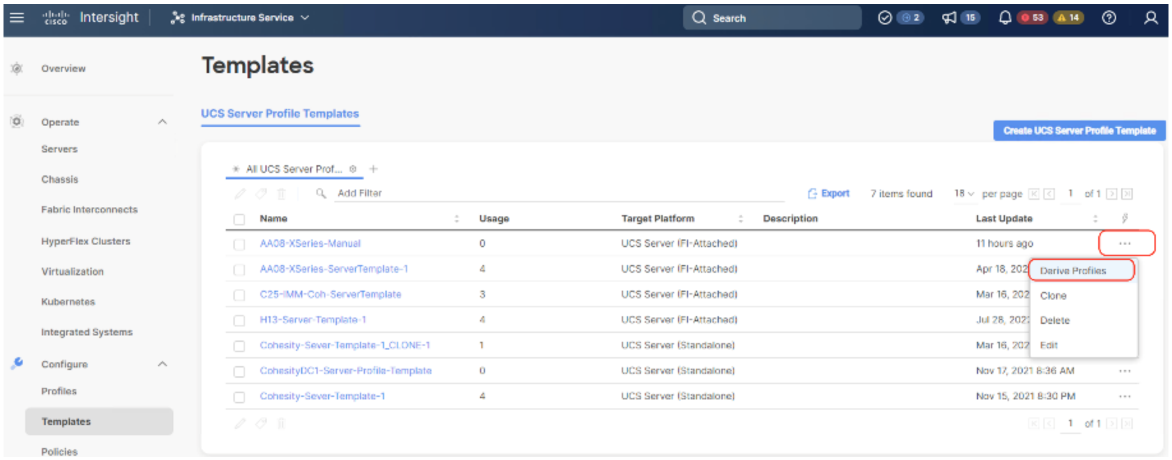
Templates

UCS Server Profile Templates

7 items found 18 per page 1 of 1

Name	Usage	Target Platform	Description	Last Update
AA08-XSeries-Manual	0	UCS Server (FI-Attached)		11 hours ago
AA08-XSeries-ServerTemplate-1	4	UCS Server (FI-Attached)		Apr 18, 2023 1:44 PM
C25-IMM-Coh-ServerTemplate	3	UCS Server (FI-Attached)		Mar 16, 2023 12:02 PM
H13-Server-Template-1	4	UCS Server (FI-Attached)		Jul 28, 2022 3:35 PM
Cohesity-Sever-Template-1_CLONE-1	1	UCS Server (Standalone)		Mar 16, 2022 1:28 PM
CohesityDC1-Server-Profile-Template	0	UCS Server (Standalone)		Nov 17, 2021 8:36 AM
Cohesity-Sever-Template-1	4	UCS Server (Standalone)		Nov 15, 2021 8:30 PM

Step 2. Click the ... icon and select Derive Profiles.



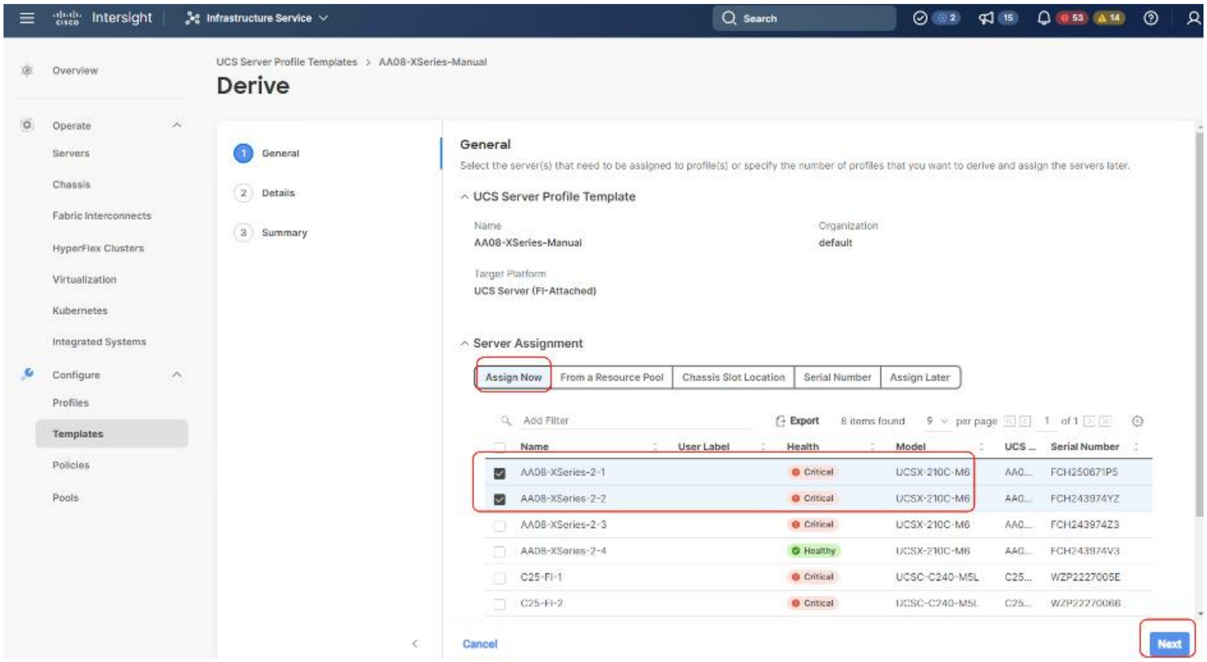
Templates

UCS Server Profile Templates

7 items found 18 per page 1 of 1

Name	Usage	Target Platform	Description	Last Update
AA08-XSeries-Manual	0	UCS Server (FI-Attached)		11 hours ago
AA08-XSeries-ServerTemplate-1	4	UCS Server (FI-Attached)		Apr 18, 202
C25-IMM-Coh-ServerTemplate	3	UCS Server (FI-Attached)		Mar 16, 202
H13-Server-Template-1	4	UCS Server (FI-Attached)		Jul 28, 202
Cohesity-Sever-Template-1_CLONE-1	1	UCS Server (Standalone)		Mar 16, 202
CohesityDC1-Server-Profile-Template	0	UCS Server (Standalone)		Nov 17, 2021 8:36 AM
Cohesity-Sever-Template-1	4	UCS Server (Standalone)		Nov 15, 2021 8:30 PM

Step 3. Identify and select the Cisco UCS X210c nodes for Server Profile deployment and click Next.



UCS Server Profile Templates > AA08-XSeries-Manual

Derive

General

Select the server(s) that need to be assigned to profile(s) or specify the number of profiles that you want to derive and assign the servers later.

UCS Server Profile Template

Name: AA08-XSeries-Manual

Organization: default

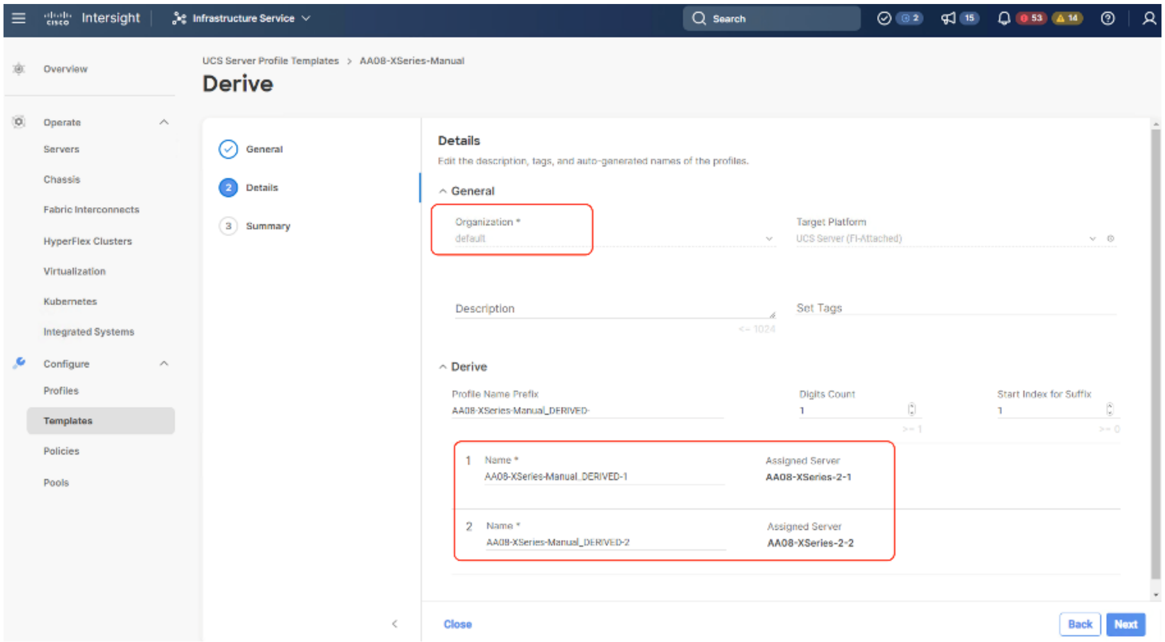
Target Platform: UCS Server (FI-Attached)

Server Assignment

8 items found 9 per page 1 of 1

	Name	User Label	Health	Model	UCS ...	Serial Number
☑	AA08-XSeries-2-1		Critical	UCSX-210C-M6	AA0...	FCH250671P5
☑	AA08-XSeries-2-2		Critical	UCSX-210C-M6	AA0...	FCH243974YZ
□	AA08-XSeries-2-3		Critical	UCSX-210C-M6	AA0...	FCH243974Z3
□	AA08-XSeries-2-4		Healthy	UCSX-210C-M6	AA0...	FCH243974V3
□	C25-FI-1		Critical	UCSC-C240-M5L	C25...	WZP2227005E
□	C25-FI-2		Critical	UCSC-C240-M5L	C25...	WZP22270066

Step 4. Select organization (default in this deployment), edit the name of Profiles if required and click Next.



UCS Server Profile Templates > AA08-XSeries-Manual

Derive

Details

Edit the description, tags, and auto-generated names of the profiles.

General

Organization * default

Target Platform UCS Server (FI-Attached)

Description

<= 1024

Set Tags

Derive

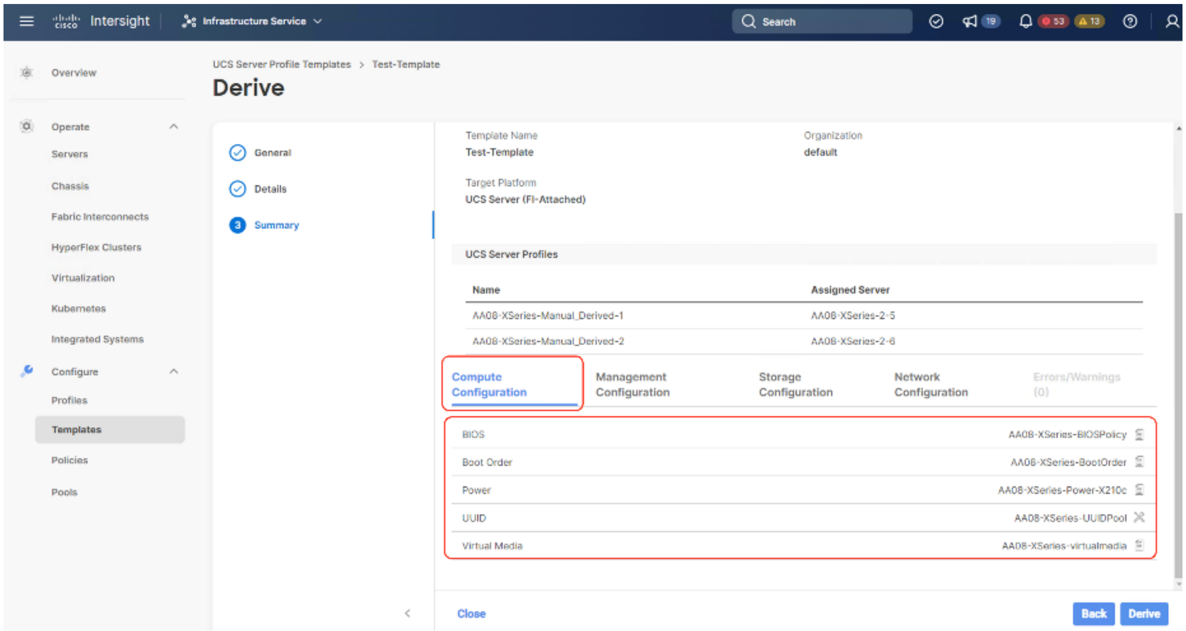
Profile Name Prefix AA08-XSeries-Manual_DERIVED-

Digits Count 1 (>= 1)

Start Index for Suffix 1 (>= 0)

	Name *	Assigned Server
1	AA08-XSeries-Manual_DERIVED-1	AA08-XSeries-2-1
2	AA08-XSeries-Manual_DERIVED-2	AA08-XSeries-2-2

Step 5. All Server policies attached to the template will be attached to the derived Server Profiles. Click Derive.



UCS Server Profile Templates > Test-Template

Derive

Template Name Test-Template

Organization default

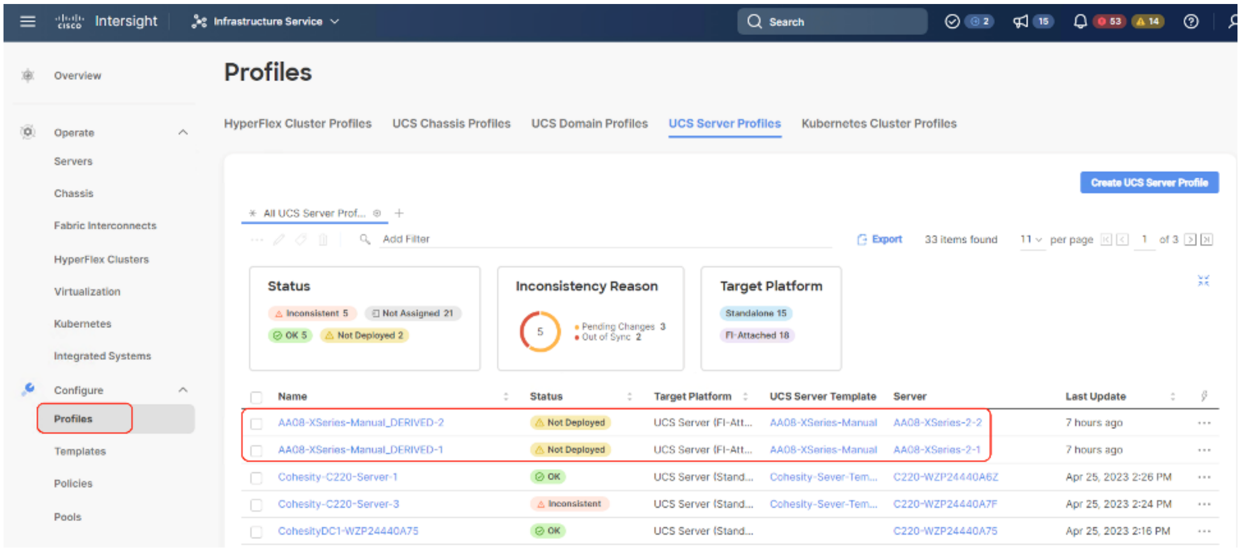
Target Platform UCS Server (FI-Attached)

UCS Server Profiles

Name	Assigned Server
AA08-XSeries-Manual_Derived-1	AA08-XSeries-2-5
AA08-XSeries-Manual_Derived-2	AA08-XSeries-2-6

BIOS	AA08-XSeries-BIOSPolicy
Boot Order	AA08-XSeries-BootOrder
Power	AA08-XSeries-Power-X210c
UUID	AA08-XSeries-UUIDPool
Virtual Media	AA08-XSeries-virtualmedia

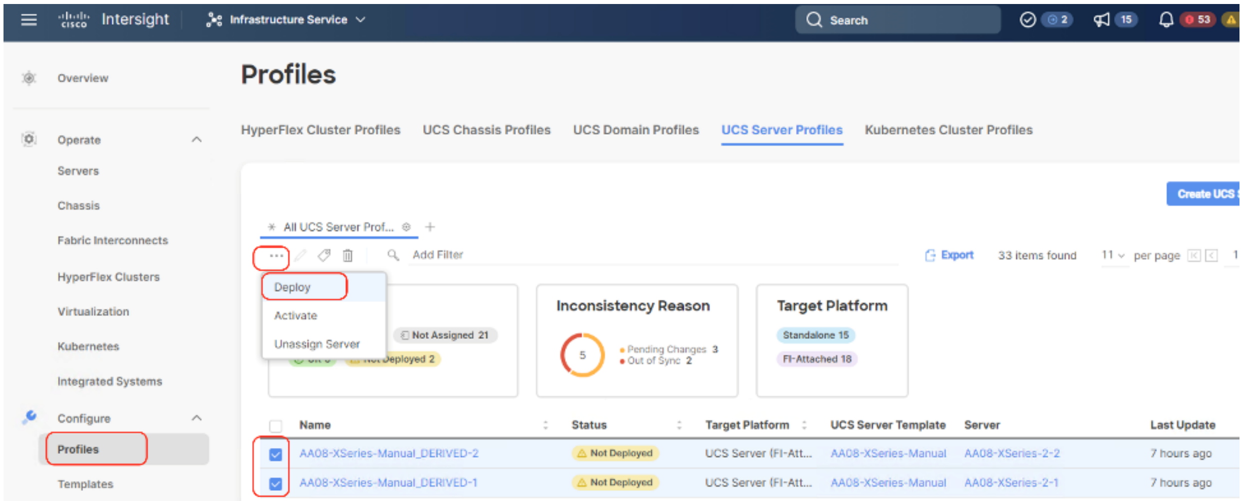
Step 6. The Server Profiles will be validated and ready to be deployed to the Cisco UCS X210c nodes. A “Not Deployed” icon will be displayed on the derived Server Profiles.



Profiles

Name	Status	Target Platform	UCS Server Template	Server	Last Update
AA08-XSeries-Manual_DERIVED-2	Not Deployed	UCS Server (FI-Att...	AA08-XSeries-Manual	AA08-XSeries-2-2	7 hours ago
AA08-XSeries-Manual_DERIVED-1	Not Deployed	UCS Server (FI-Att...	AA08-XSeries-Manual	AA08-XSeries-2-1	7 hours ago
Cohesity-C220-Server-1	OK	UCS Server (Stand...	Cohesity-Sever-Tem...	C220-WZP24440A6Z	Apr 25, 2023 2:26 PM
Cohesity-C220-Server-3	Inconsistent	UCS Server (Stand...	Cohesity-Sever-Tem...	C220-WZP24440A7F	Apr 25, 2023 2:24 PM
CohesityDC1-WZP24440A75	OK	UCS Server (Stand...		C220-WZP24440A75	Apr 25, 2023 2:16 PM

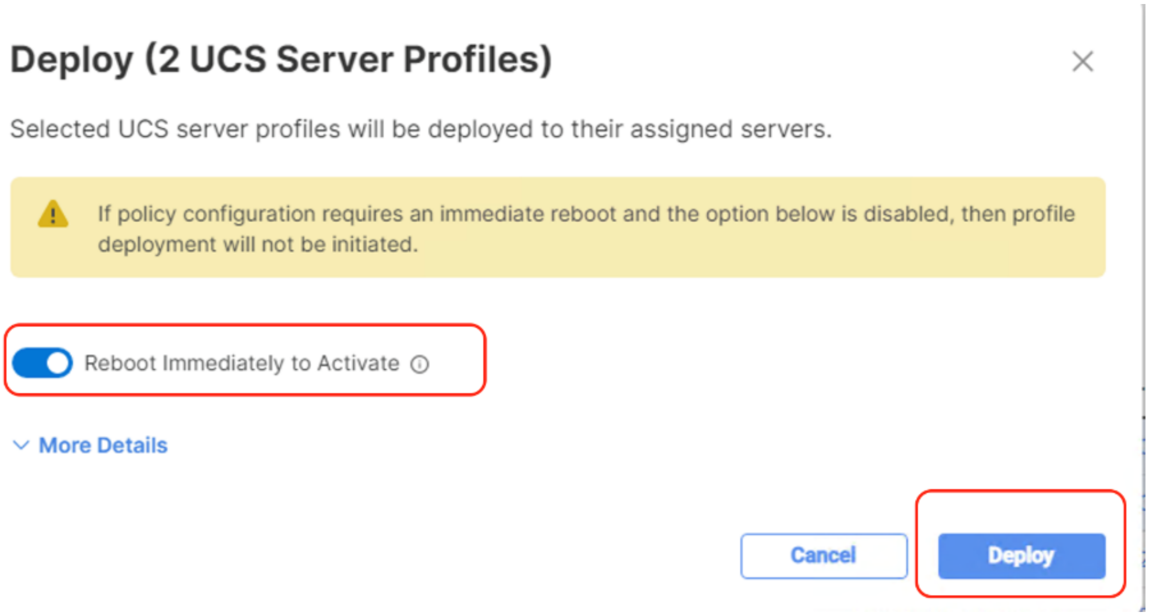
Step 7. Select the Not Deployed Server Profiles, click the ... icon and click Deploy.



Profiles

	Name	Status	Target Platform	UCS Server Template	Server	Last Update
☑	AA08-XSeries-Manual_DERIVED-2	Not Deployed	UCS Server (FI-Att...	AA08-XSeries-Manual	AA08-XSeries-2-2	7 hours ago
☑	AA08-XSeries-Manual_DERIVED-1	Not Deployed	UCS Server (FI-Att...	AA08-XSeries-Manual	AA08-XSeries-2-1	7 hours ago

Step 8. Enable Reboot Immediately to Activate and click Deploy.



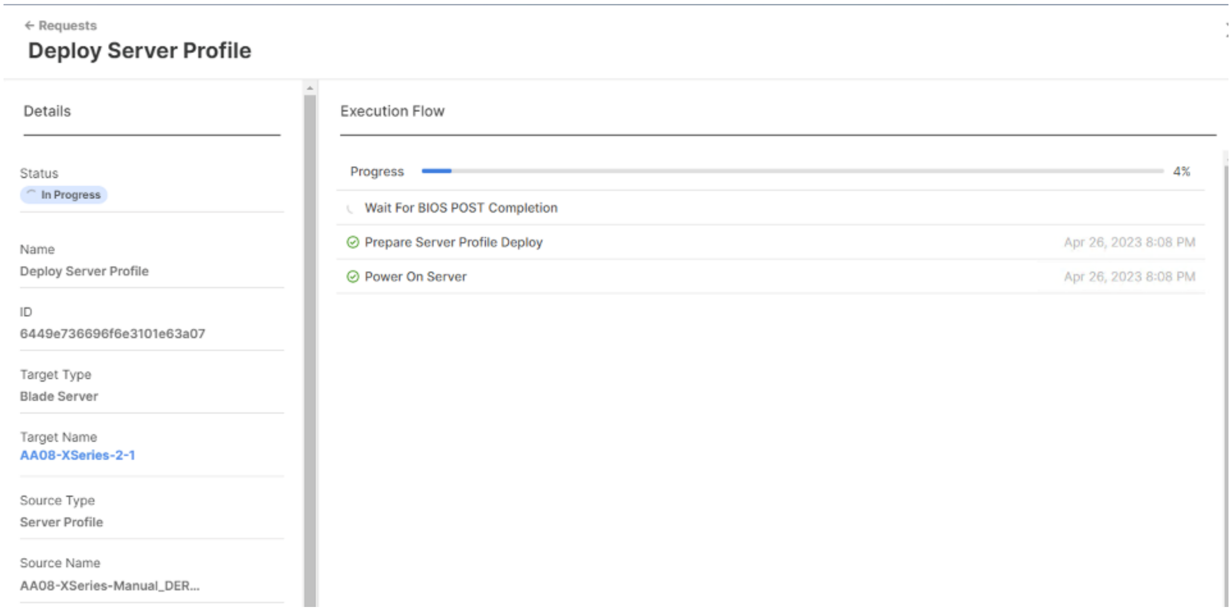
Deploy (2 UCS Server Profiles)

Selected UCS server profiles will be deployed to their assigned servers.

If policy configuration requires an immediate reboot and the option below is disabled, then profile deployment will not be initiated.

● Reboot Immediately to Activate

Step 9. Monitor the Server Profile deployment status and ensure the Profile deploys successfully to the Cisco UCS X210C node.



← Requests

Deploy Server Profile

Details

Status: In Progress

Name: Deploy Server Profile

ID: 6449e736696f6e3101e63a07

Target Type: Blade Server

Target Name: AA08-XSeries-2-1

Source Type: Server Profile

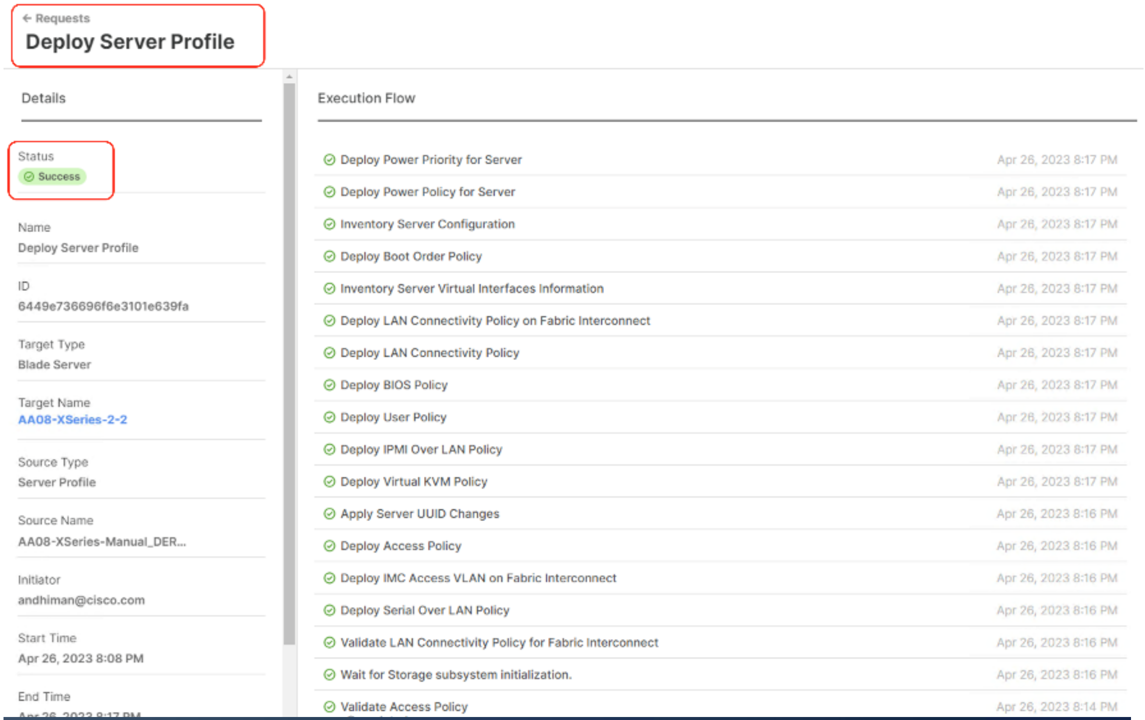
Source Name: AA08-XSeries-Manual_DER...

Execution Flow

Progress 4%

Wait For BIOS POST Completion	
✓ Prepare Server Profile Deploy	Apr 26, 2023 8:08 PM
✓ Power On Server	Apr 26, 2023 8:08 PM

Step 10. When the Server Profile deployment completes successfully, you can proceed to the Cohesity Data Cloud deployment on the Cisco UCS X210C nodes.



← Requests

Deploy Server Profile

Details

Status: Success

Name: Deploy Server Profile

ID: 6449e736696f6e3101e639fa

Target Type: Blade Server

Target Name: AA08-XSeries-2-2

Source Type: Server Profile

Source Name: AA08-XSeries-Manual_DER...

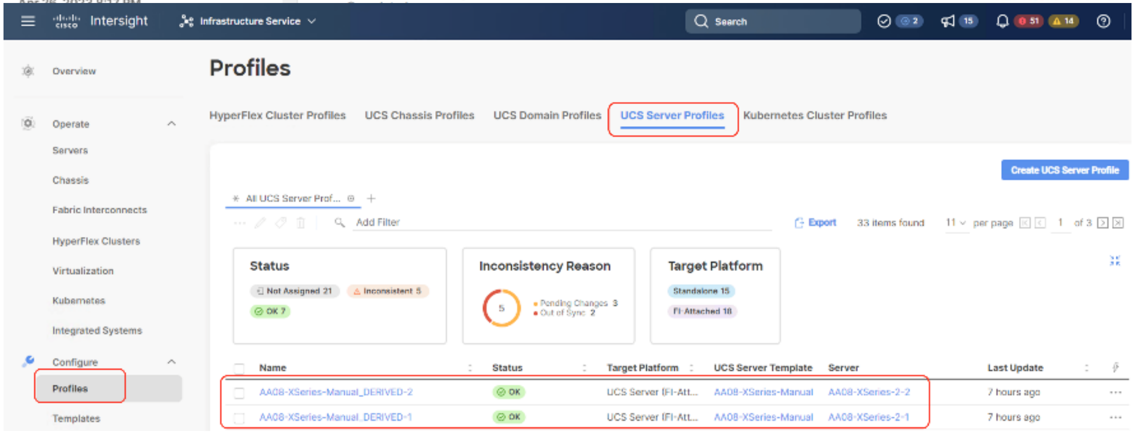
Initiator: andhiman@cisco.com

Start Time: Apr 26, 2023 8:08 PM

End Time: Apr 26, 2023 8:17 PM

Execution Flow

✓ Deploy Power Priority for Server	Apr 26, 2023 8:17 PM
✓ Deploy Power Policy for Server	Apr 26, 2023 8:17 PM
✓ Inventory Server Configuration	Apr 26, 2023 8:17 PM
✓ Deploy Boot Order Policy	Apr 26, 2023 8:17 PM
✓ Inventory Server Virtual Interfaces Information	Apr 26, 2023 8:17 PM
✓ Deploy LAN Connectivity Policy on Fabric Interconnect	Apr 26, 2023 8:17 PM
✓ Deploy LAN Connectivity Policy	Apr 26, 2023 8:17 PM
✓ Deploy BIOS Policy	Apr 26, 2023 8:17 PM
✓ Deploy User Policy	Apr 26, 2023 8:17 PM
✓ Deploy IPMI Over LAN Policy	Apr 26, 2023 8:17 PM
✓ Deploy Virtual KVM Policy	Apr 26, 2023 8:17 PM
✓ Apply Server UUID Changes	Apr 26, 2023 8:16 PM
✓ Deploy Access Policy	Apr 26, 2023 8:16 PM
✓ Deploy IMC Access VLAN on Fabric Interconnect	Apr 26, 2023 8:16 PM
✓ Deploy Serial Over LAN Policy	Apr 26, 2023 8:16 PM
✓ Validate LAN Connectivity Policy for Fabric Interconnect	Apr 26, 2023 8:16 PM
✓ Wait for Storage subsystem initialization.	Apr 26, 2023 8:16 PM
✓ Validate Access Policy	Apr 26, 2023 8:14 PM



Profiles

Status: Not Assigned 21, Inconsistent 5, OK 7

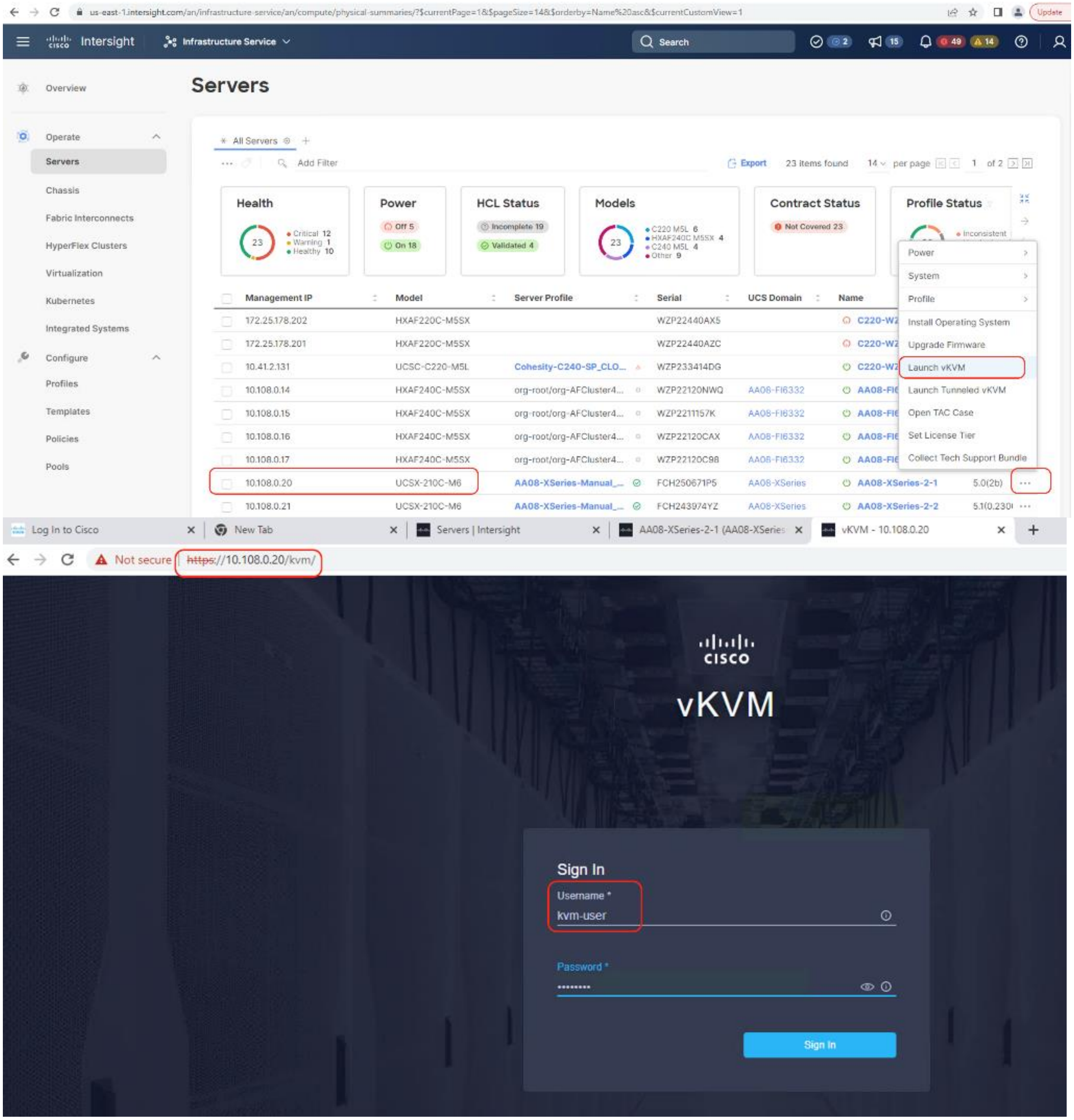
Inconsistency Reason: 5 — Pending Changes 3, Out of Sync 2

Target Platform: Standalone 15, FI-Attached 18

Name	Status	Target Platform	UCS Server Template	Server	Last Update
AA08-XSeries-Manual_DERIVED-2	OK	UCS Server (FI-Att...	AA08-XSeries-Manual	AA08-XSeries-2-2	7 hours ago
AA08-XSeries-Manual_DERIVED-1	OK	UCS Server (FI-Att...	AA08-XSeries-Manual	AA08-XSeries-2-1	7 hours ago

Step 11. Access KVM with KVM username > kvm-user and password > <<as configured in local user policy>>, and make sure the node is accessible.

Step 12. Virtual KVM can be accessed by directly launching from Cisco Intersight (Launch vKVM) or access the node management IP.



Management IP	Model	Server Profile	Serial	UCS Domain	Name	
172.25.178.202	HXAF220C-M5SX		WZP22440AX5		C220-WZ	
172.25.178.201	HXAF220C-M5SX		WZP22440AZC		C220-WZ	
10.41.2.131	UCSC-C220-M5L	Cohesity-C240-SP_CLO...	WZP233414DG		C220-WZ	
10.108.0.14	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120NWQ	AA08-FI6332	AA08-FI€	
10.108.0.15	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP2211157K	AA08-FI6332	AA08-FI€	
10.108.0.16	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120CAX	AA08-FI6332	AA08-FI€	
10.108.0.17	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120C98	AA08-FI6332	AA08-FI€	
10.108.0.20	UCSX-210C-M6	AA08-XSeries-Manual_...	FCH250671P5	AA08-XSeries	AA08-XSeries-2-1	5.0(2b)
10.108.0.21	UCSX-210C-M6	AA08-XSeries-Manual_...	FCH243974YZ	AA08-XSeries	AA08-XSeries-2-2	5.1(0.230

Username * kvm-user

Password * ••••••••

Install OS through Cisco Intersight

Procedure 1. Install Cohesity Data Cloud through Cisco Intersight OS Installation feature

This procedure expands on the process to install the Cohesity Data Cloud operating system through the Cisco Intersight OS installation feature.

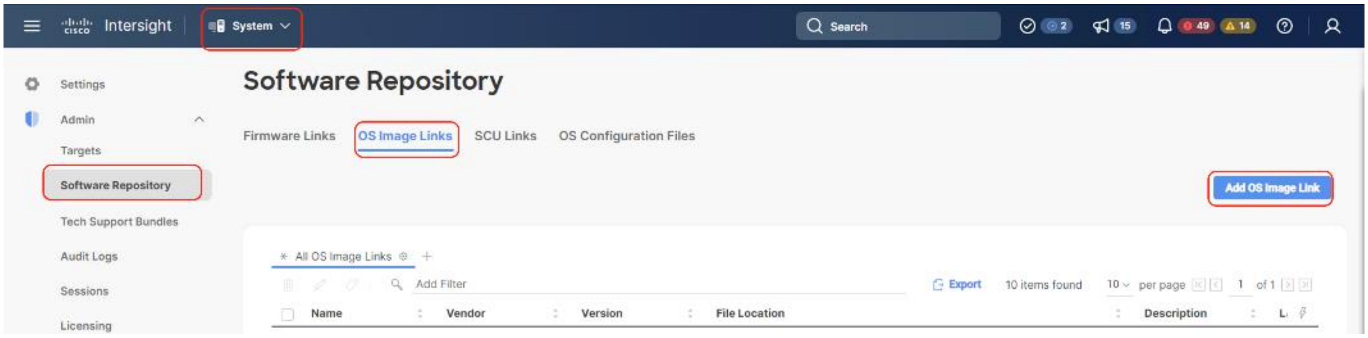
Note: This feature is only supported with the Intersight Advantage Tier License.

Note: Make sure the certified Cohesity Data Cloud ISO is available from a local repository, for example an HTTPS/NFS/CIFS server. This is a one-time process for each version of the Cohesity Data Cloud ISO.

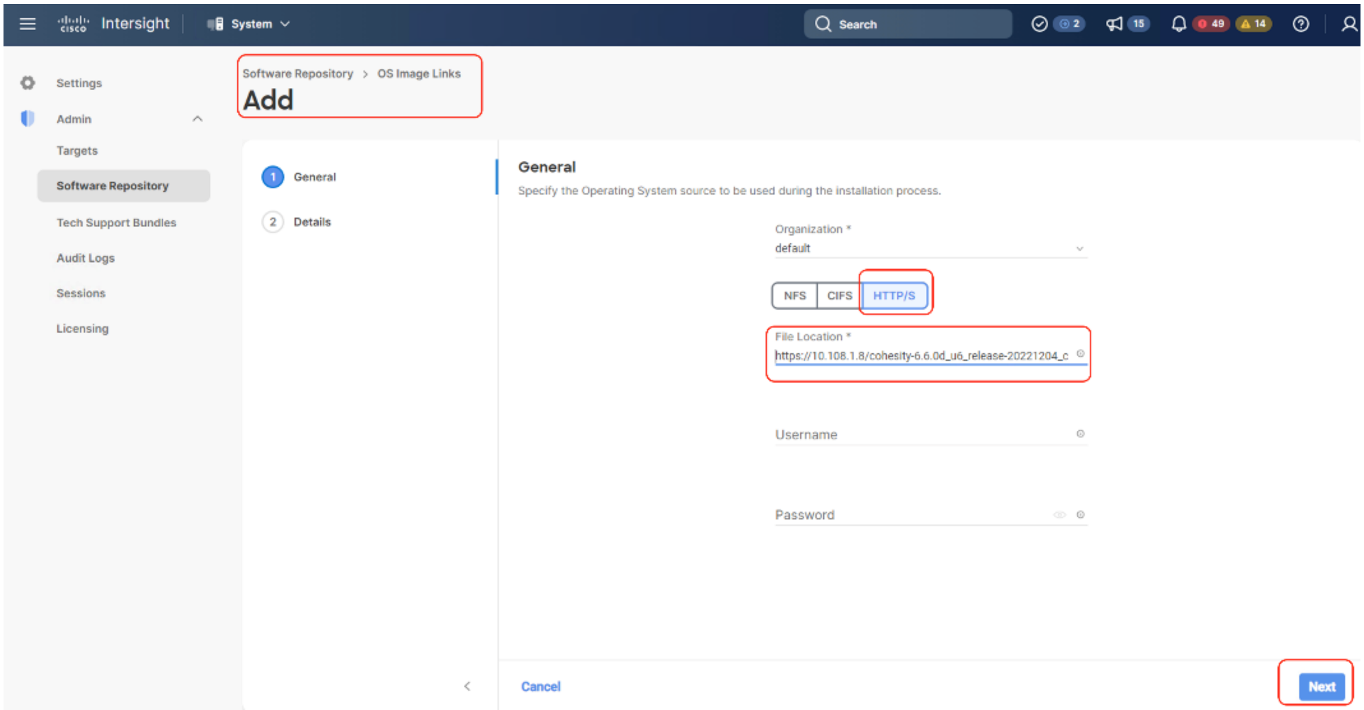
Step 1. Login to Cisco Intersight and click System.

Step 2. Click Software Repository and click the OS Image Links tab.

Step 3. Click Add OS Image Link.



Step 4. Add the location of the Cohesity Data Cloud ISO (NFS/CIFS or HTTPS server) and click Next.



General

Specify the Operating System source to be used during the installation process.

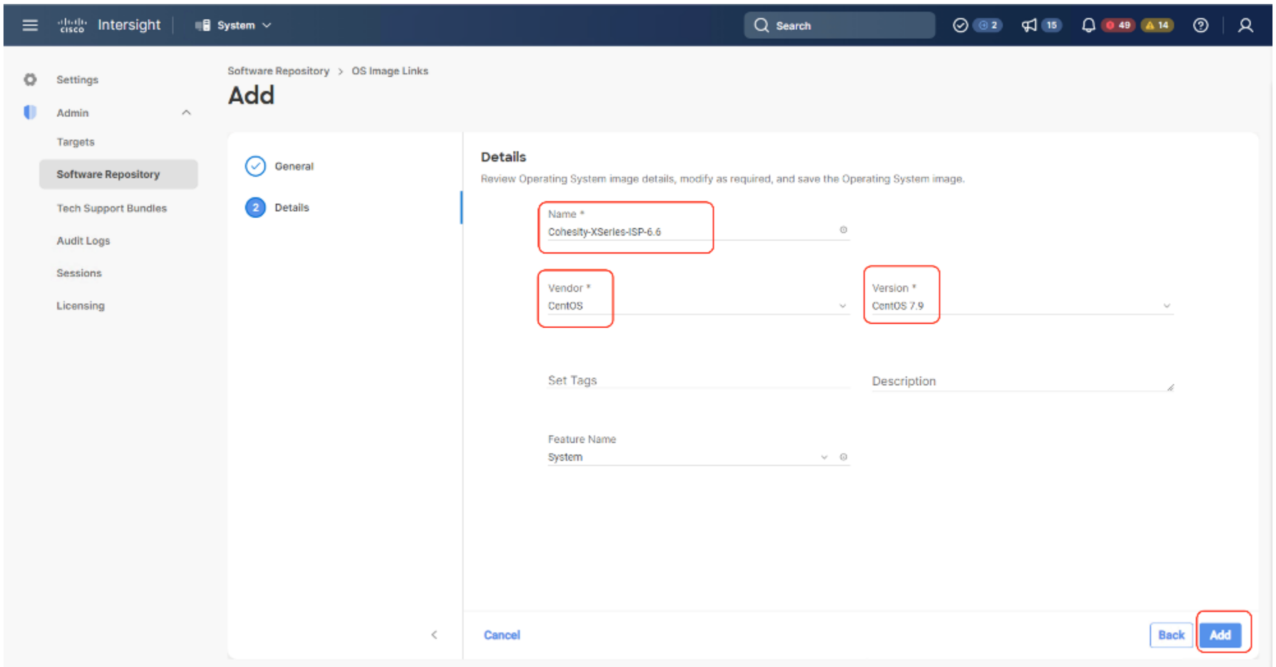
Organization *
default

File Location *
https://10.108.1.8/cohesity-6.6.0d_u6_release-20221204_c

Username

Password

Step 5. Enter a name for the Repository, for the Vendor enter CentOS, and for the Version enter CentOS7.9. Click Add.



Add

Details

Review Operating System image details, modify as required, and save the Operating System image.

Name * Cohesity-XSeries-ISP-6.6

Vendor * CentOS

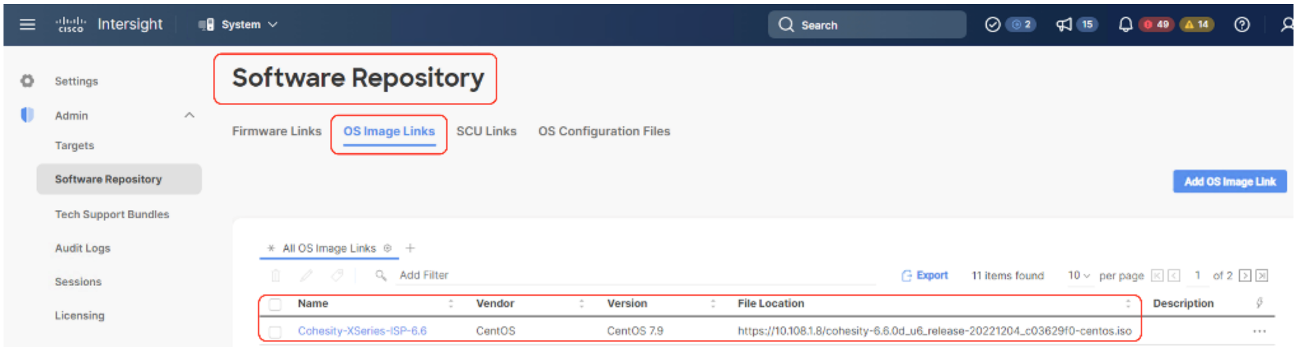
Version * CentOS 7.9

Set Tags

Description

Feature Name System

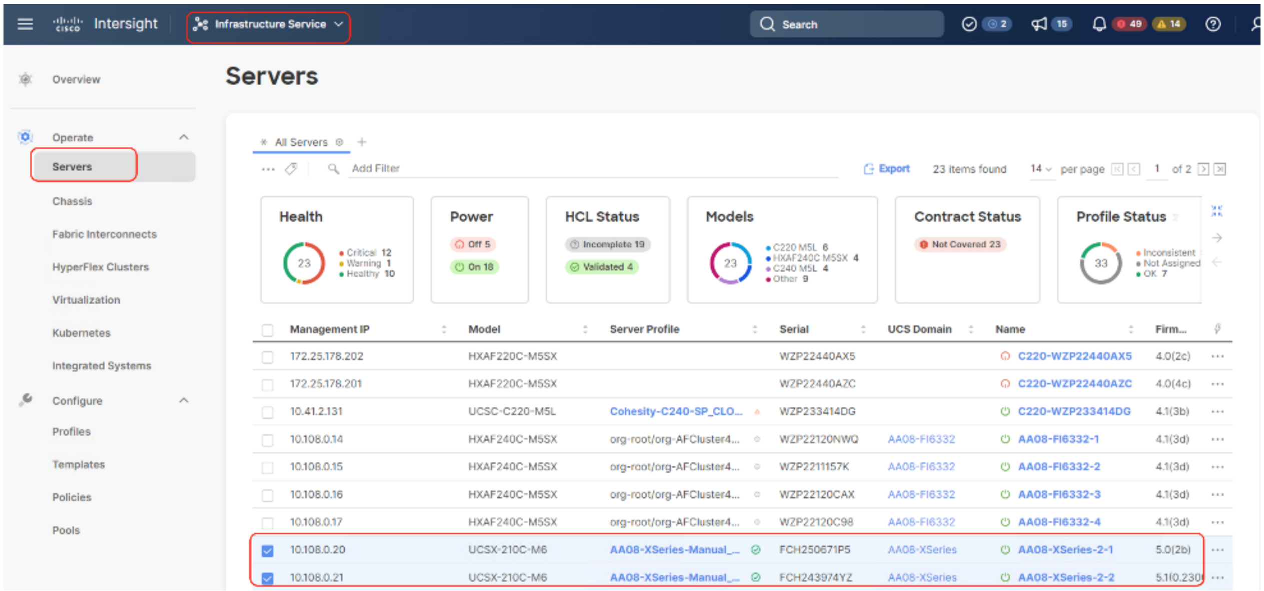
Step 6. Make sure the OS Repository is successfully created in Cisco Intersight.



Software Repository

Name	Vendor	Version	File Location	Description
Cohesity-XSeries-ISP-6.6	CentOS	CentOS 7.9	https://10.108.1.8/cohesity-6.6.0d_u6_release-20221204_c03629f0-centos.iso	

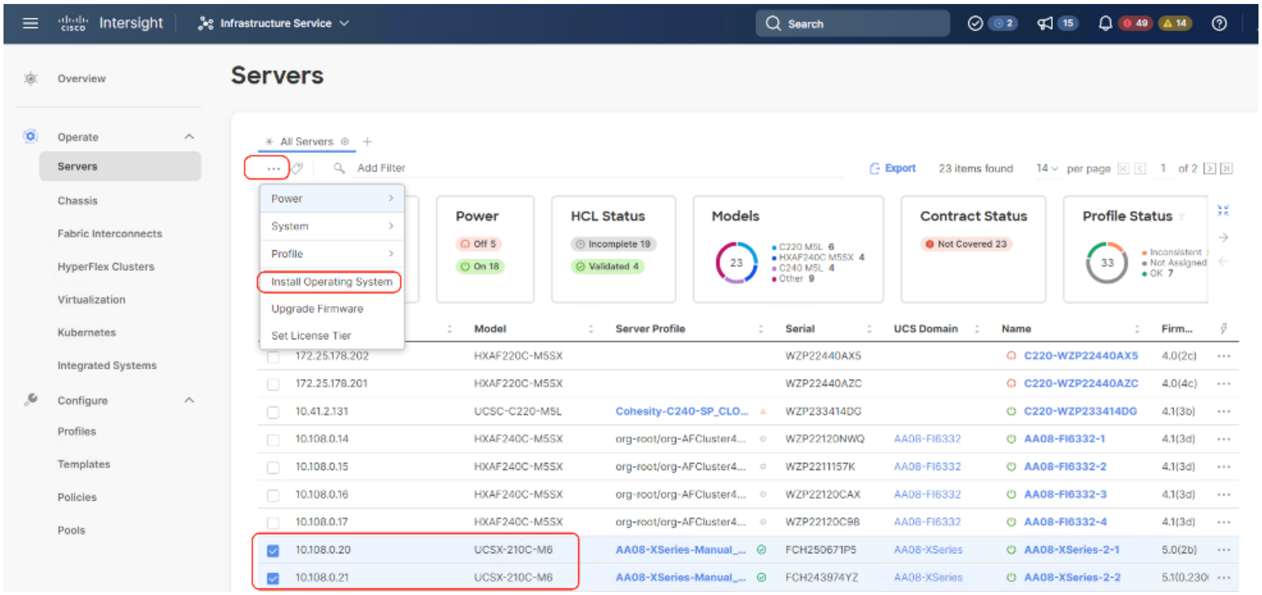
Step 7. From Cisco Intersight, click Infrastructure Service, then click Servers, and select the Cisco UCS X210C nodes ready for the Cohesity Data Cloud installation.



Servers

	Management IP	Model	Server Profile	Serial	UCS Domain	Name	Firm...
□	172.25.178.202	HXAF220C-M5SX		WZP22440AX5		C220-WZP22440AX5	4.0(2c)
□	172.25.178.201	HXAF220C-M5SX		WZP22440AZC		C220-WZP22440AZC	4.0(4c)
□	10.41.2.131	UCSC-C220-M5L	Cohesity-C240-SP_CLO...	WZP233414DG		C220-WZP233414DG	4.1(3b)
□	10.108.0.14	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120NWQ	AA08-FI6332	AA08-FI6332-1	4.1(3d)
□	10.108.0.15	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP2211157K	AA08-FI6332	AA08-FI6332-2	4.1(3d)
□	10.108.0.16	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120CAX	AA08-FI6332	AA08-FI6332-3	4.1(3d)
□	10.108.0.17	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120C98	AA08-FI6332	AA08-FI6332-4	4.1(3d)
☑	10.108.0.20	UCSX-210C-M6	AA08-XSeries-Manual_...	FCH250671P5	AA08-XSeries	AA08-XSeries-2-1	5.0(2b)
☑	10.108.0.21	UCSX-210C-M6	AA08-XSeries-Manual_...	FCH243974YZ	AA08-XSeries	AA08-XSeries-2-2	5.1(0.230

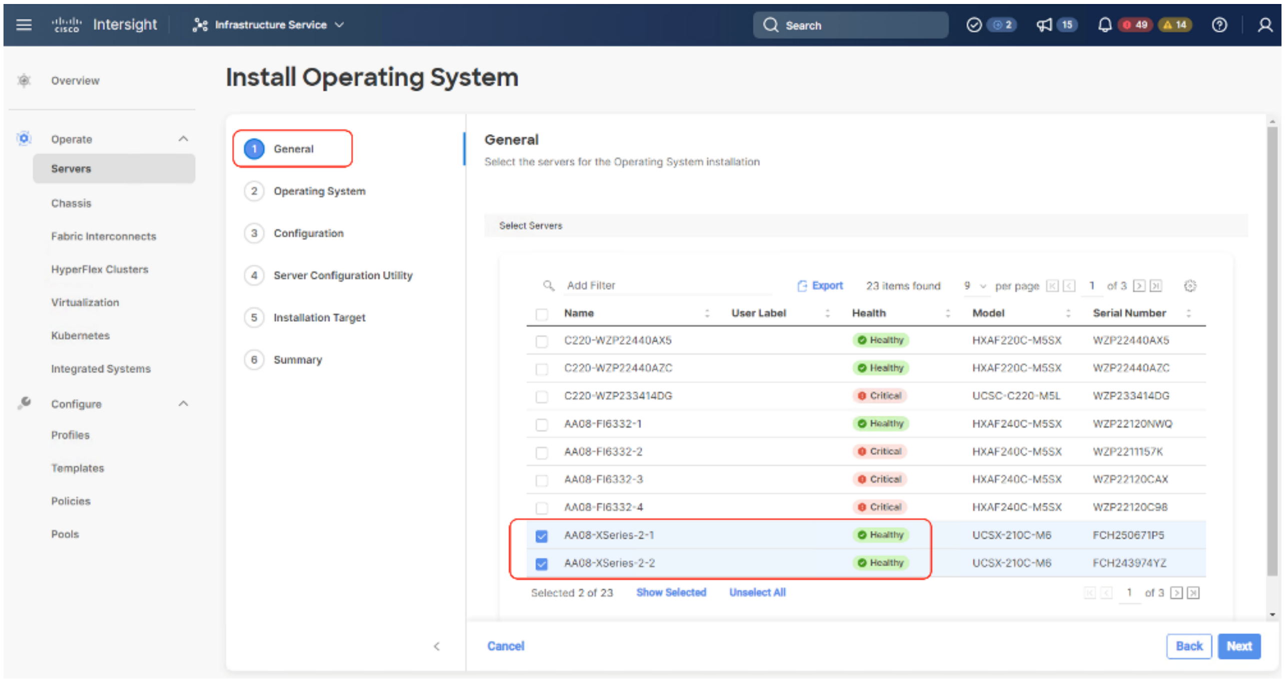
Step 8. Click the ... and select Install Operating System.



Servers

	Model	Server Profile	Serial	UCS Domain	Name	Firm...
□ 172.25.178.202	HXAF220C-M5SX		WZP22440AX5		C220-WZP22440AX5	4.0(2c)
□ 172.25.178.201	HXAF220C-M5SX		WZP22440AZC		C220-WZP22440AZC	4.0(4c)
□ 10.41.2.131	UCSC-C220-M5L	Cohesity-C240-SP_CLO...	WZP233414DG		C220-WZP233414DG	4.1(3b)
□ 10.108.0.14	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120NWQ	AA08-FI6332	AA08-FI6332-1	4.1(3d)
□ 10.108.0.15	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP2211157K	AA08-FI6332	AA08-FI6332-2	4.1(3d)
□ 10.108.0.16	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120CAX	AA08-FI6332	AA08-FI6332-3	4.1(3d)
□ 10.108.0.17	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120C98	AA08-FI6332	AA08-FI6332-4	4.1(3d)
☑ 10.108.0.20	UCSX-210C-M6	AA08-XSeries-Manual_...	FCH250671P5	AA08-XSeries	AA08-XSeries-2-1	5.0(2b)
☑ 10.108.0.21	UCSX-210C-M6	AA08-XSeries-Manual_...	FCH243974YZ	AA08-XSeries	AA08-XSeries-2-2	5.1(0.230

Step 9. Make sure the servers are already selected and click Next.



Install Operating System

General

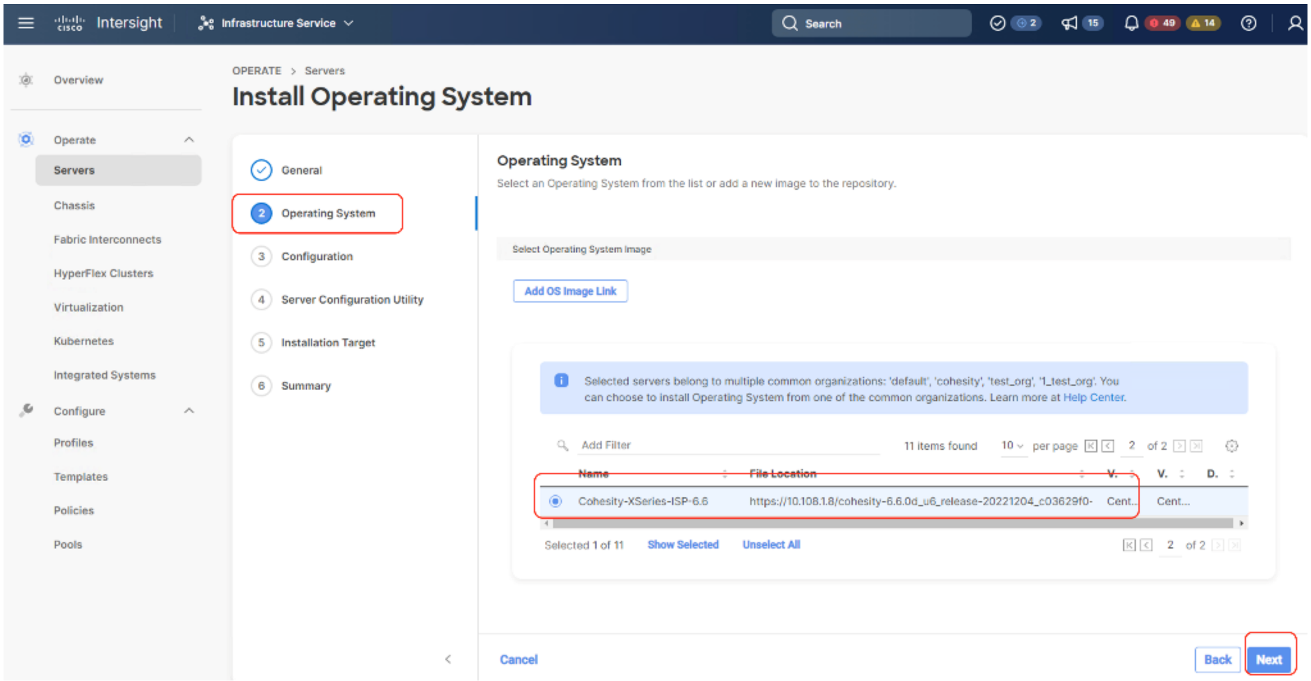
Select the servers for the Operating System installation

Select Servers

Name	User Label	Health	Model	Serial Number
□ C220-WZP22440AX5		Healthy	HXAF220C-M5SX	WZP22440AX5
□ C220-WZP22440AZC		Healthy	HXAF220C-M5SX	WZP22440AZC
□ C220-WZP233414DG		Critical	UCSC-C220-M5L	WZP233414DG
□ AA08-FI6332-1		Healthy	HXAF240C-M5SX	WZP22120NWQ
□ AA08-FI6332-2		Critical	HXAF240C-M5SX	WZP2211157K
□ AA08-FI6332-3		Critical	HXAF240C-M5SX	WZP22120CAX
□ AA08-FI6332-4		Critical	HXAF240C-M5SX	WZP22120C98
☑ AA08-XSeries-2-1		Healthy	UCSX-210C-M6	FCH250671P5
☑ AA08-XSeries-2-2		Healthy	UCSX-210C-M6	FCH243974YZ

Selected 2 of 23

Step 10. Select the Operating System repository which was previously created with the Cohesity Data Cloud ISO and click Next.



Install Operating System

Operating System

Select an Operating System from the list or add a new image to the repository.

Select Operating System Image

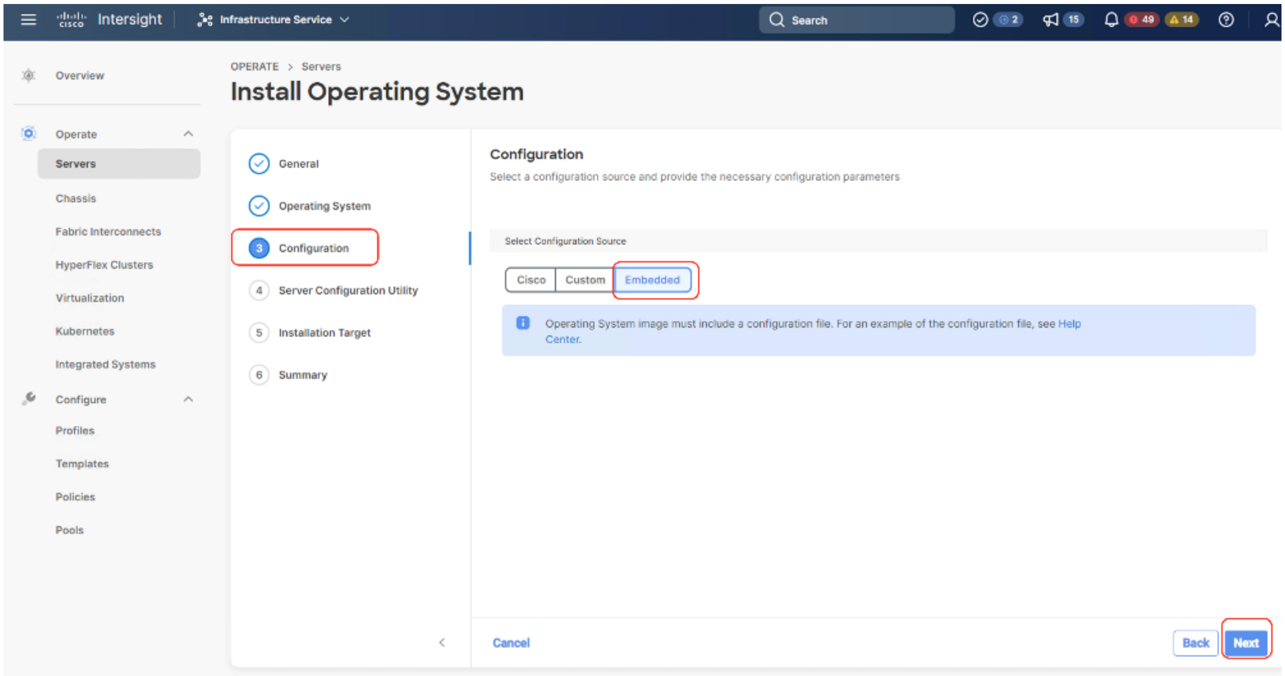
Selected servers belong to multiple common organizations: 'default', 'cohesity', 'test_org', '1_test_org'. You can choose to install Operating System from one of the common organizations. Learn more at Help Center.

Add Filter 11 items found 10 per page 2 of 2

	Name	File Location	V.	V.	D.
●	Cohesity-XSeries-ISP-6.6	https://10.108.1.8/cohesity-6.6.0d_u6_release-20221204_c03629f0-	Cent...	Cent...	

Selected 1 of 11 Show Selected Unselect All 2 of 2

Step 11. From Configuration, click Embedded and click Next (the OS configuration file is already part of Cohesity ISO).



Install Operating System

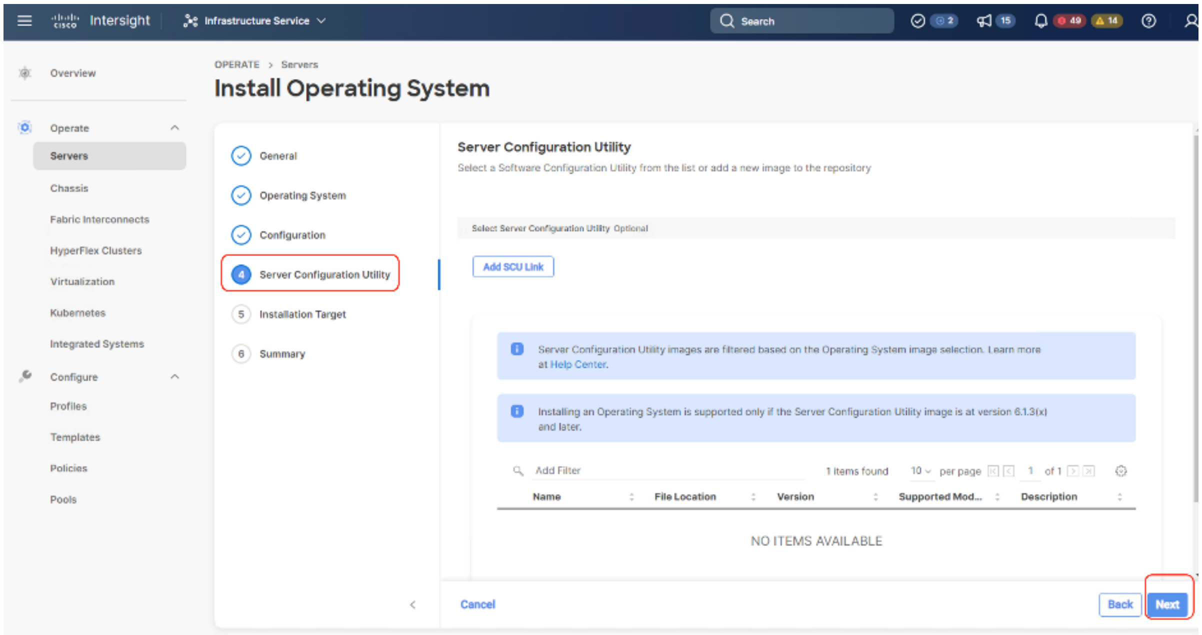
Configuration

Select a configuration source and provide the necessary configuration parameters

Select Configuration Source

Operating System image must include a configuration file. For an example of the configuration file, see Help Center.

Step 12. Click Next.



Install Operating System

Server Configuration Utility

Select a Software Configuration Utility from the list or add a new image to the repository

Select Server Configuration Utility Optional

Server Configuration Utility images are filtered based on the Operating System image selection. Learn more at Help Center.

Installing an Operating System is supported only if the Server Configuration Utility image is at version 6.1.3(x) and later.

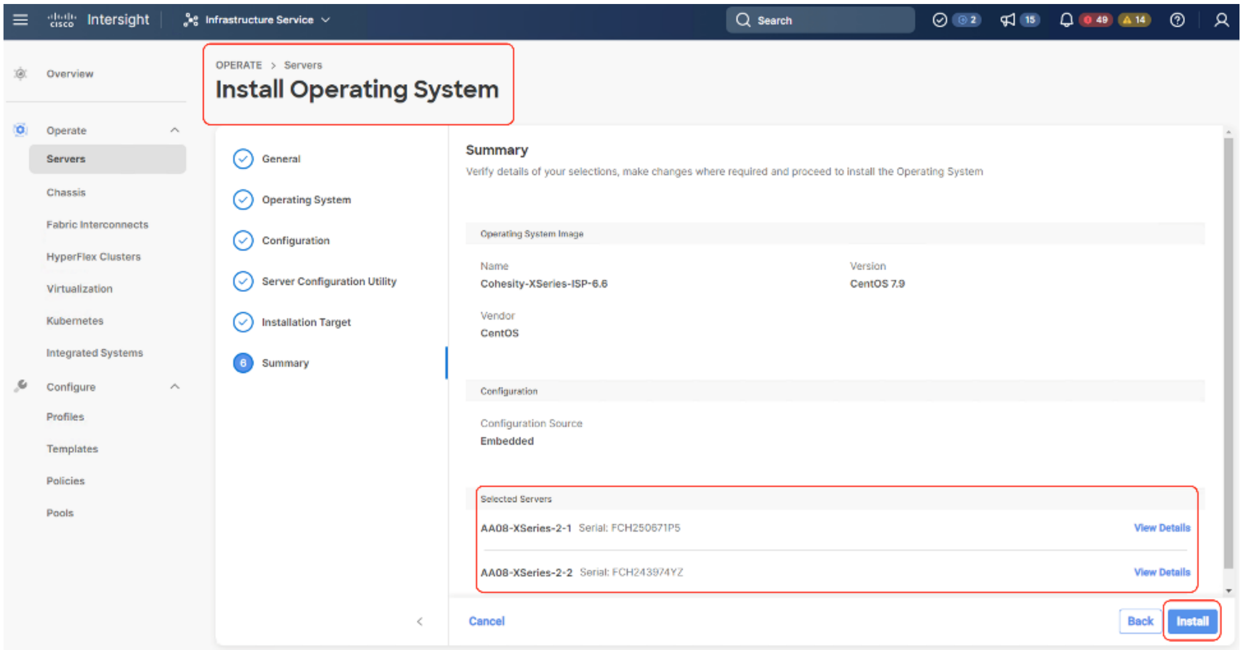
Add Filter 1 items found 10 per page 1 of 1

Name	File Location	Version	Supported Mod...	Description

NO ITEMS AVAILABLE

Step 13. Click Next from the Installation target. Cohesity ISO automatically identifies the Installation target as the 2x M.2 internal drives configured in the Boot Order Server Policy.

Step 14. Verify the summary and click Install.



Install Operating System

Summary

Verify details of your selections, make changes where required and proceed to install the Operating System

Operating System Image

Name
Cohesity-XSeries-ISP-6.6

Version
CentOS 7.9

Vendor
CentOS

Configuration

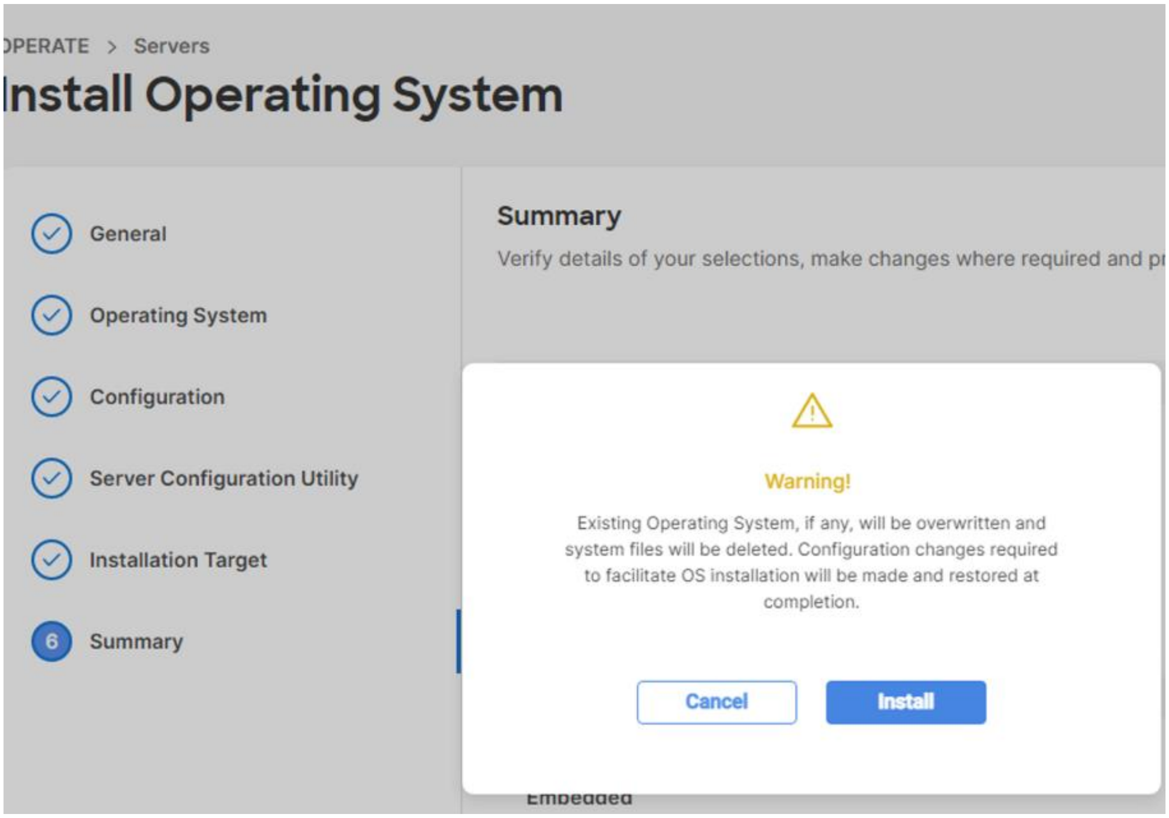
Configuration Source
Embedded

Selected Servers

AA08-XSeries-2-1 Serial: FCH250671P5

AA08-XSeries-2-2 Serial: FCH243974YZ

Step 15. Accept the warning for overwriting the existing OS image on the node and click Install.



OPERATE > Servers

Install Operating System

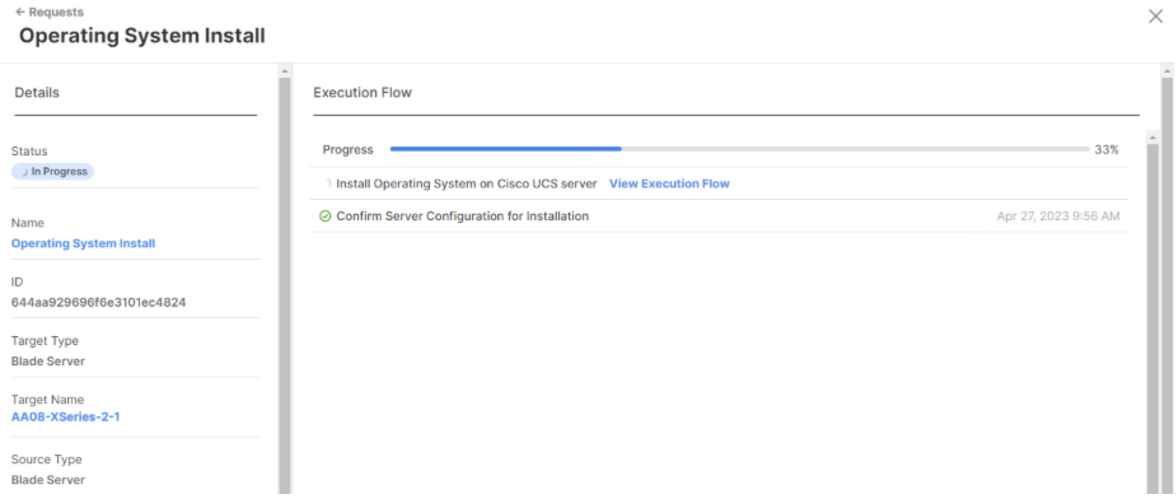
Summary

Verify details of your selections, make changes where required and pr

Warning!

Existing Operating System, if any, will be overwritten and system files will be deleted. Configuration changes required to facilitate OS installation will be made and restored at completion.

Step 16. Monitor the OS installation progress and wait for completion. Depending on the network bandwidth between the node management network and the repository network, it can take up to 45 minutes for the OS installation to complete.



← Requests

Operating System Install

Details

Status
In Progress

Name
Operating System Install

ID
644aa929696f6e3101ec4824

Target Type
Blade Server

Target Name
AA08-XSeries-2-1

Source Type
Blade Server

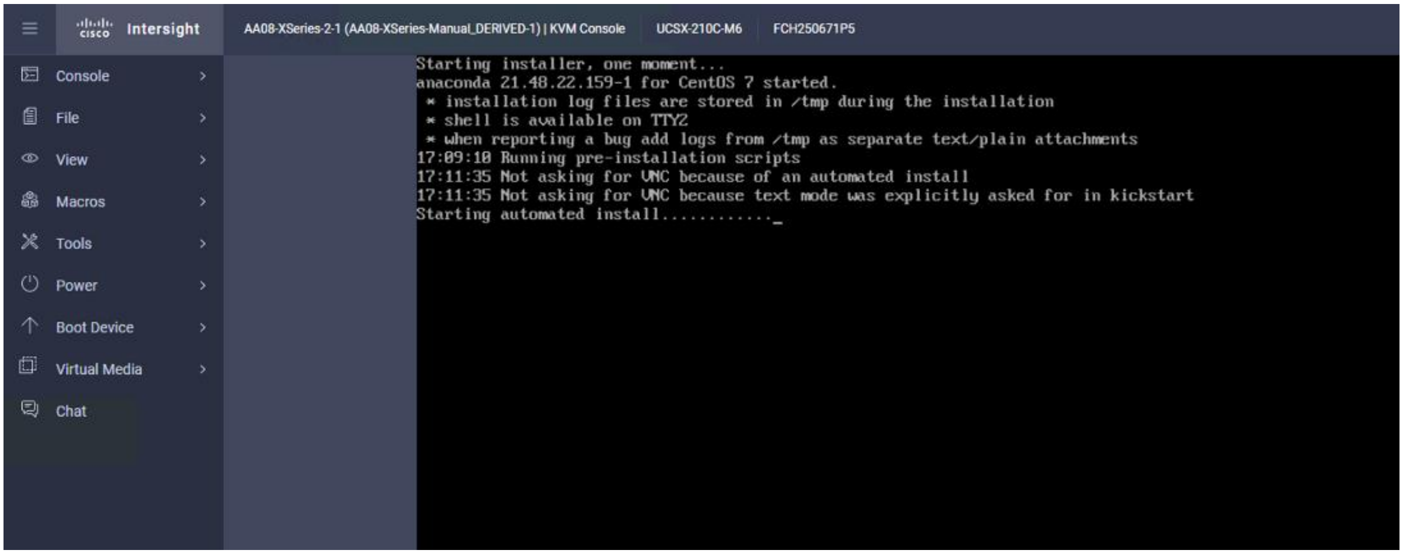
Execution Flow

Progress 33%

Install Operating System on Cisco UCS server View Execution Flow

✓ Confirm Server Configuration for Installation Apr 27, 2023 9:56 AM

Step 17. Since this is an embedded installation without the Cisco Server Configuration utility, Cisco Intersight displays the OS installation completion in about five minutes. Open a virtual KVM session and monitor the Cohesity OS install progress. Since this is an automated install, you are not required to provide any inputs on the virtual KVM screen. The OS installation progress is shown below:



```
Starting installer, one moment...
anaconda 21.48.22.159-1 for CentOS 7 started.
 * installation log files are stored in /tmp during the installation
 * shell is available on TTY2
 * when reporting a bug add logs from /tmp as separate text/plain attachments
17:09:10 Running pre-installation scripts
17:11:35 Not asking for VNC because of an automated install
17:11:35 Not asking for VNC because text mode was explicitly asked for in kickstart
Starting automated install............_
```

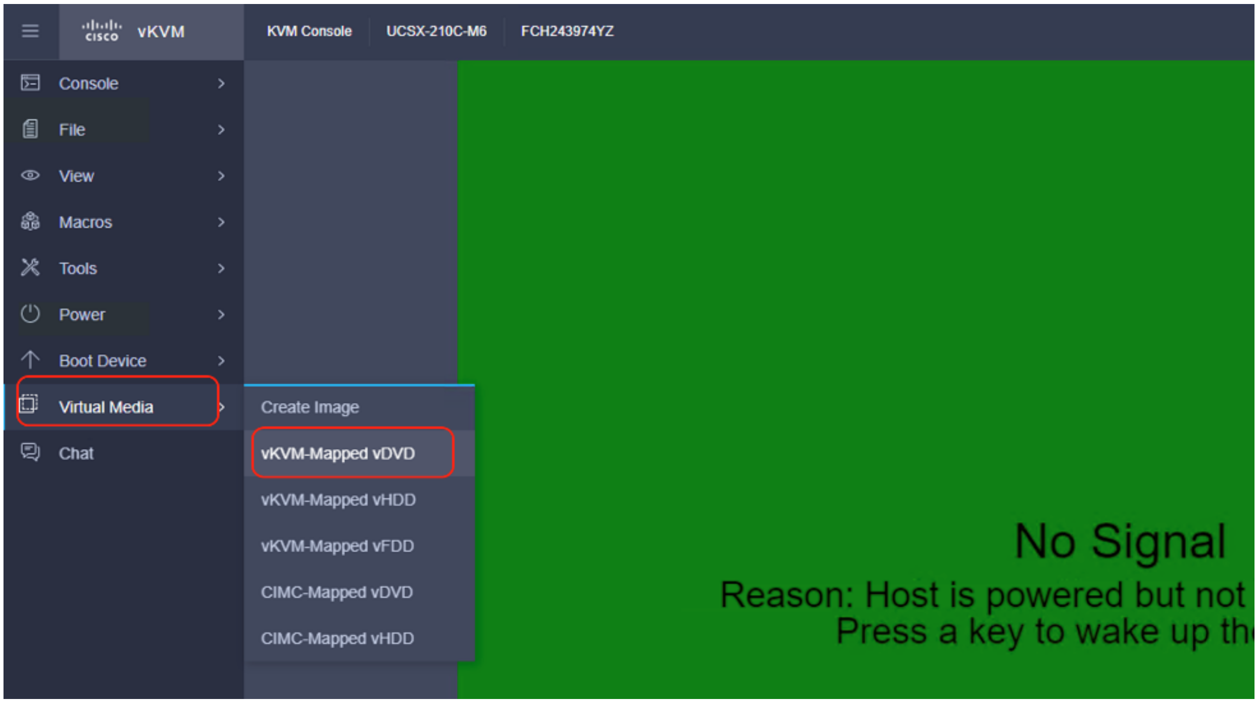
Install OS through Virtual Media

Procedure 1. Install Cohesity Data Cloud through Virtual Media

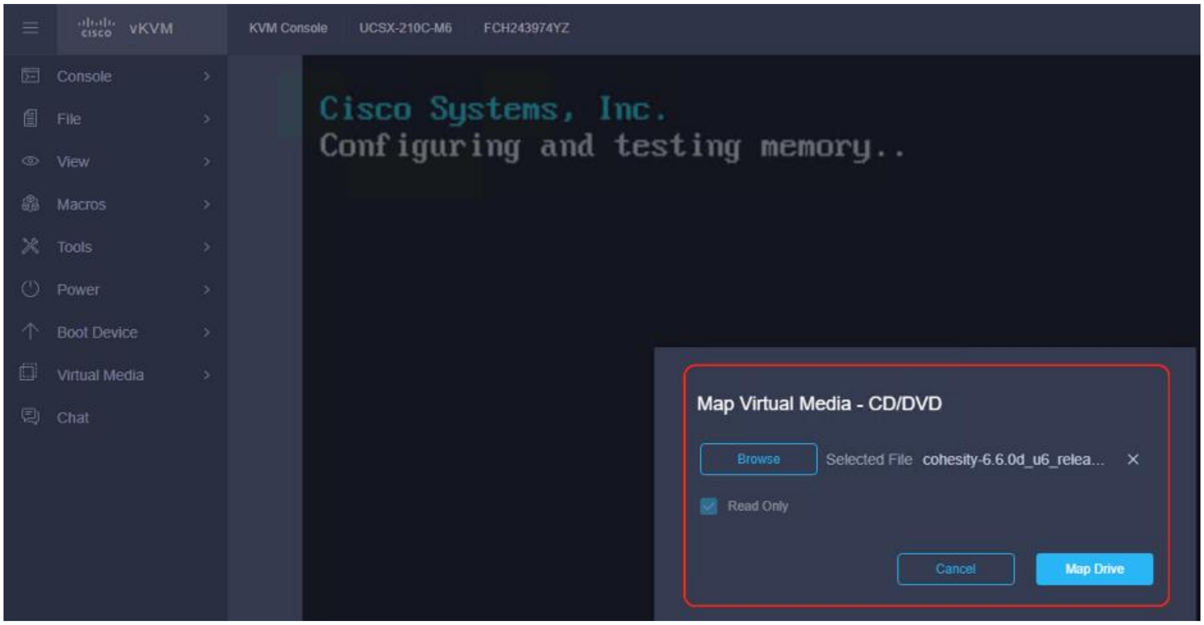
This procedure expands on the process to install the Cohesity Data Cloud operating system through virtual media. You need to open a virtual KVM session for each node. Virtual KVM session can be accessed through Cisco Intersight or logging into node management IP assigned during Server Profile deployment.

Note: If you are installing the OS through virtual media and it times out, please use a different browser such as Mozilla Firefox.

Step 1. Login to virtual KVM, click Virtual Media and click vKVM-Mapped DVD.



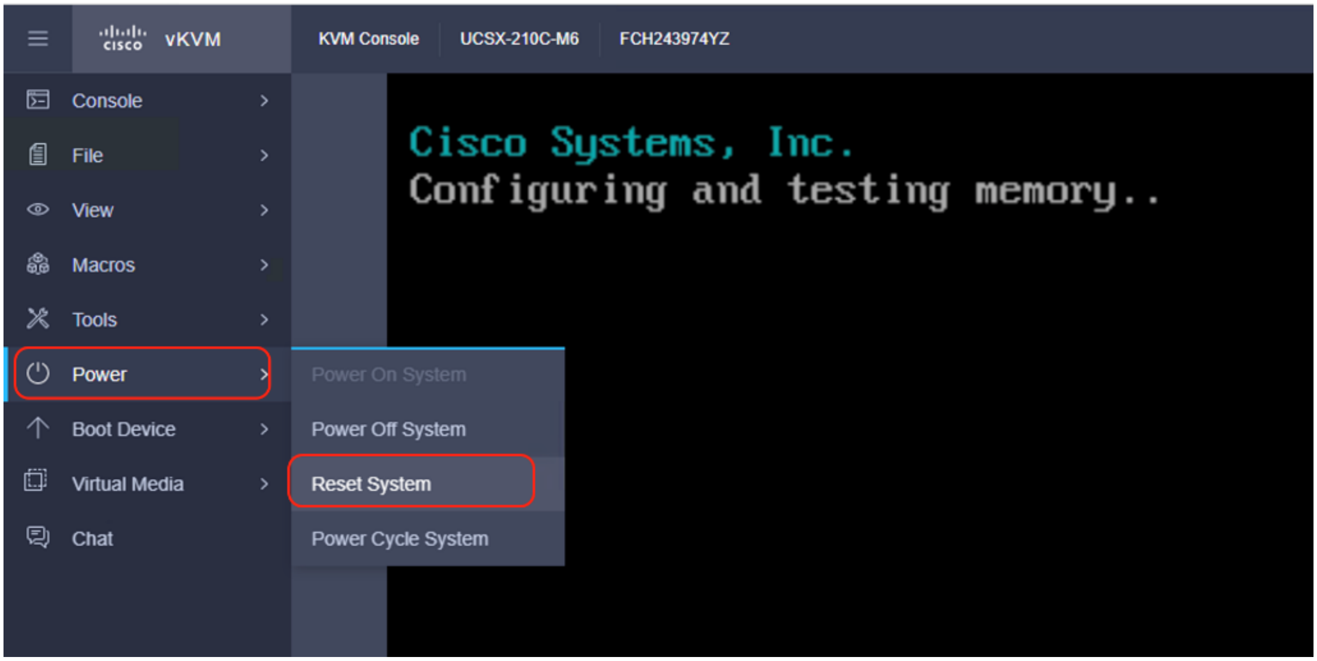
Step 2. Select the Cohesity Data Cloud ISO from your local file system and click Map Drive.



```
Cisco Systems, Inc.
Configuring and testing memory..
```

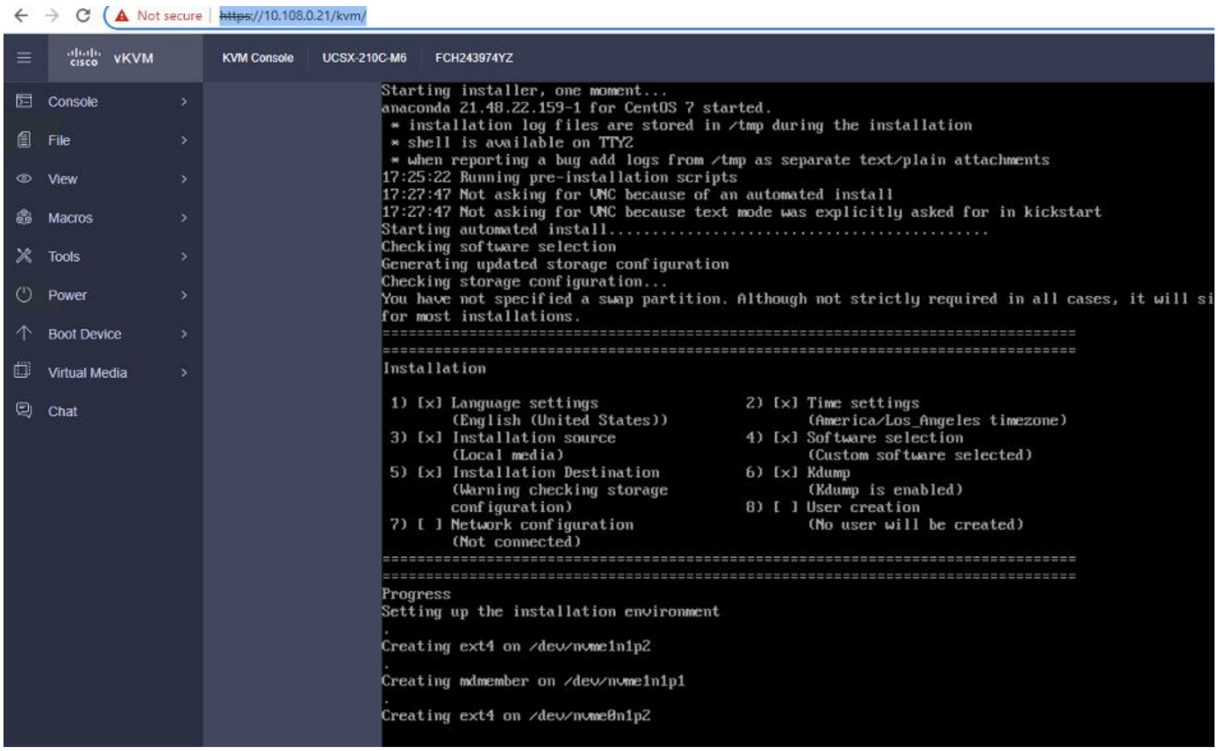
Selected File cohesity-6.6.0d_u6_relea...

Step 3. Click Power and then click Reset System to reset the power cycle on the node. The Cohesity ISO automatically loads (with virtual Media having highest priority in Boot Order Server Policy).



```
Cisco Systems, Inc.
Configuring and testing memory..
```

Step 4. The ISO automatically identifies the drives to install the Cohesity ISO; the OS installation completes in about 45 minutes.



```
Starting installer, one moment...
anaconda 21.48.22.159-1 for CentOS 7 started.
 * installation log files are stored in /tmp during the installation
 * shell is available on TTY2
 * when reporting a bug add logs from /tmp as separate text/plain attachments
17:25:22 Running pre-installation scripts
17:27:47 Not asking for VNC because of an automated install
17:27:47 Not asking for VNC because text mode was explicitly asked for in kickstart
Starting automated install..........................................
Checking software selection
Generating updated storage configuration
Checking storage configuration...
You have not specified a swap partition. Although not strictly required in all cases, it will si
for most installations.
================================================================================
================================================================================
Installation

 1) [x] Language settings                    2) [x] Time settings
        (English (United States))                   (America/Los_Angeles timezone)
 3) [x] Installation source                  4) [x] Software selection
        (Local media)                               (Custom software selected)
 5) [x] Installation Destination             6) [x] Kdump
        (Warning checking storage                   (Kdump is enabled)
        configuration)                       8) [ ] User creation
 7) [ ] Network configuration                       (No user will be created)
        (Not connected)
================================================================================
================================================================================
Progress
Setting up the installation environment
.
Creating ext4 on /dev/nvme1n1p2
.
Creating mdmember on /dev/nvme1n1p1
.
Creating ext4 on /dev/nvme0n1p2
```

Step 5. Repeat this procedure for all Cisco UCS X210c nodes to be configured for the Cohesity Data Cloud cluster.

Configure Cohesity Data Cloud

This section elaborates on the configuration of the Cohesity Data Cloud on Cisco UCS X-Series Modular System. The existing deployment is deployed with three (3) Cisco UCS X210c nodes with each node configured with both compute and All NVMe storage.

Note: Make sure the Data Cloud ISO is installed on each Cisco UCS X210c node.

Note: The network bonding mode on the Cohesity operating systems (CentOS 7.9)_ with Cisco UCS X-Series or Cisco UCS Fabric Interconnect Managed C-Series servers does not support bond mode 4. For reference, go to: https://www.cisco.com/c/en/us/support/docs/servers-unified-computing/ucs-b-series-blade-servers/200519-UCS-B-series-Teaming-Bonding-Options-wi.html)

The Data Cloud Cluster configuration is a two-step process:

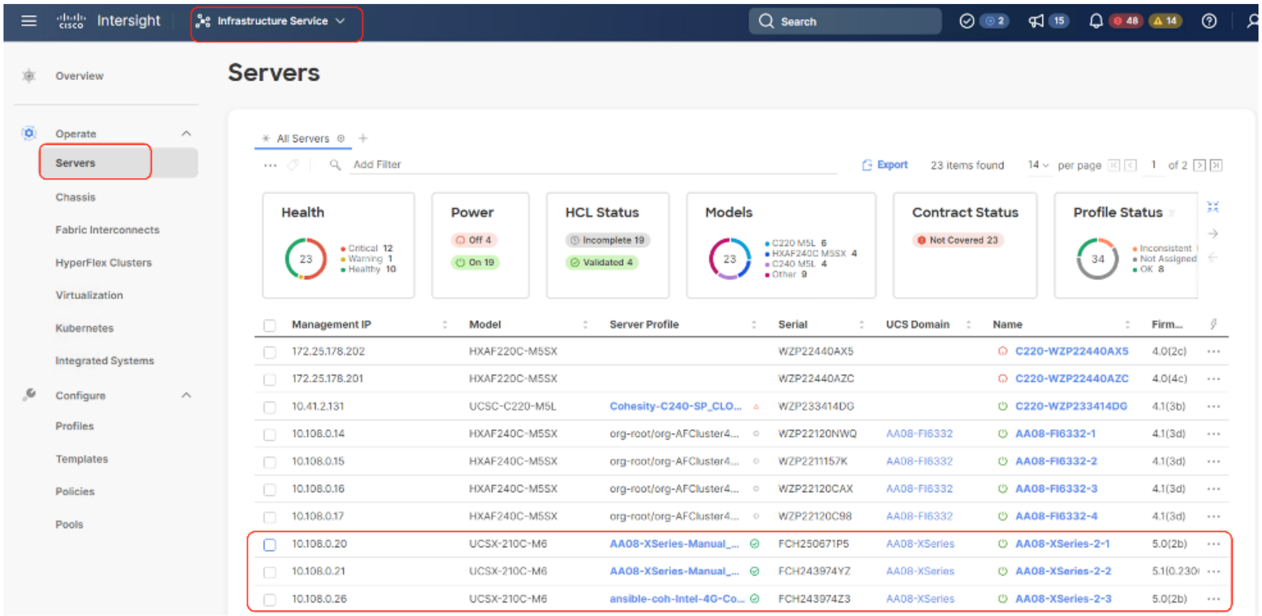
- Initial network configuration on 1x Cisco UCS X210c node
- Cluster configuration across all Cisco UCS X210c nodes

Configure First Node

Procedure 1. Initial Network Configuration on 1x Cisco UCS X210c Node

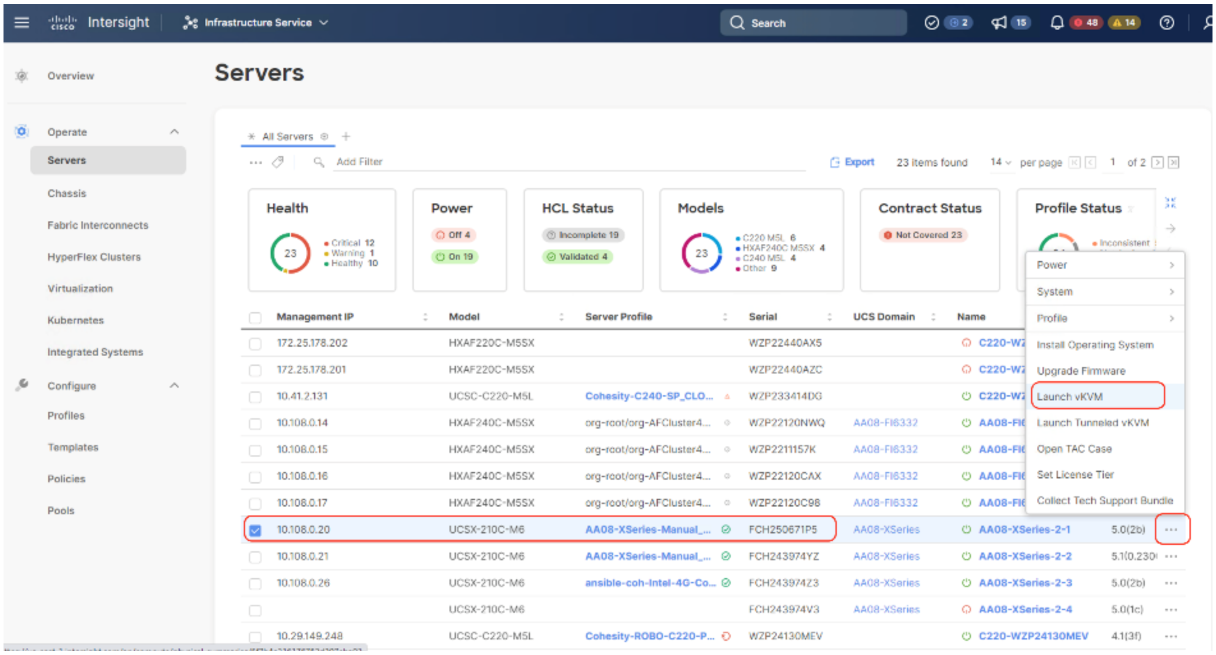
In this procedure, any one of the Cisco UCS X210 nodes are accessed through the virtual KVM and the initial operating system network is configured.

Step 1. Login to Cisco Intersight, click Infrastructure Service and click Servers. Identify the Cisco UCS X210c nodes installed with the Cohesity Data Cloud ISO.



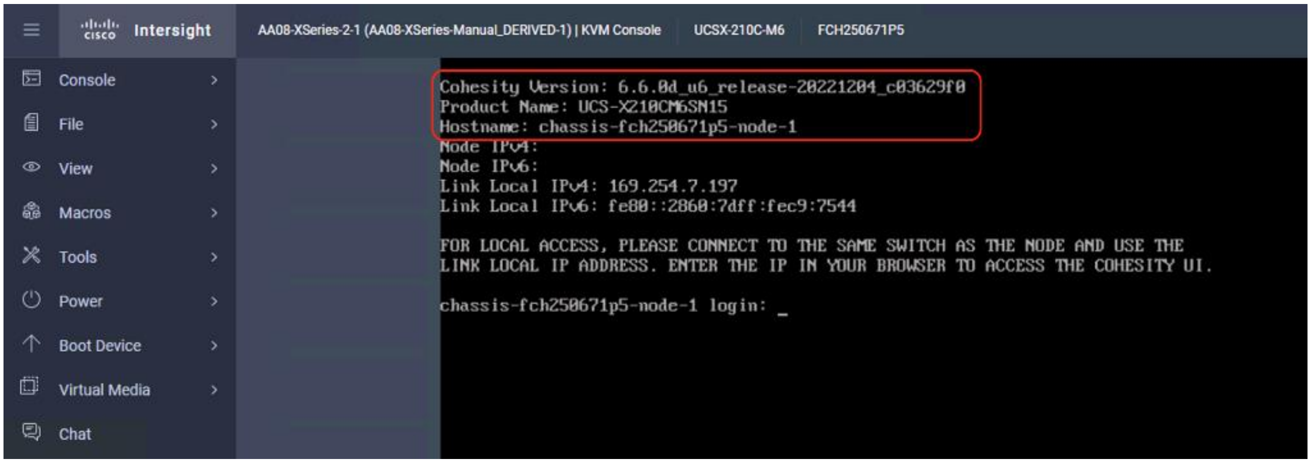
Management IP	Model	Server Profile	Serial	UCS Domain	Name	Firm...
172.25.178.202	HXAF220C-M5SX		WZP22440AX5		C220-WZP22440AX5	4.0(2c)
172.25.178.201	HXAF220C-M5SX		WZP22440AZC		C220-WZP22440AZC	4.0(4c)
10.41.2.131	UCSC-C220-M5L	Cohesity-C240-SP_CLO...	WZP233414DG		C220-WZP233414DG	4.1(3b)
10.108.0.14	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120NWQ	AA08-FI6332	AA08-FI6332-1	4.1(3d)
10.108.0.15	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP2211157K	AA08-FI6332	AA08-FI6332-2	4.1(3d)
10.108.0.16	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120CAX	AA08-FI6332	AA08-FI6332-3	4.1(3d)
10.108.0.17	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120C98	AA08-FI6332	AA08-FI6332-4	4.1(3d)
10.108.0.20	UCSX-210C-M6	AA08-XSeries-Manual_...	FCH250671P5	AA08-XSeries	AA08-XSeries-2-1	5.0(2b)
10.108.0.21	UCSX-210C-M6	AA08-XSeries-Manual_...	FCH243974YZ	AA08-XSeries	AA08-XSeries-2-2	5.1(0.230
10.108.0.26	UCSX-210C-M6	ansible-coh-Intel-4G-Co...	FCH243974Z3	AA08-XSeries	AA08-XSeries-2-3	5.0(2b)

Step 2. Select the first node and launch the virtual KVM.



Management IP	Model	Server Profile	Serial	UCS Domain	Name	
172.25.178.202	HXAF220C-M5SX		WZP22440AX5		C220-WZ	
172.25.178.201	HXAF220C-M5SX		WZP22440AZC		C220-WZ	
10.41.2.131	UCSC-C220-M5L	Cohesity-C240-SP_CLO...	WZP233414DG		C220-WZ	
10.108.0.14	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120NWQ	AA08-FI6332	AA08-FI6	
10.108.0.15	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP2211157K	AA08-FI6332	AA08-FI6	
10.108.0.16	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120CAX	AA08-FI6332	AA08-FI6	
10.108.0.17	HXAF240C-M5SX	org-root/org-AFCluster4...	WZP22120C98	AA08-FI6332	AA08-FI6	
10.108.0.20	UCSX-210C-M6	AA08-XSeries-Manual_...	FCH250671P5	AA08-XSeries	AA08-XSeries-2-1	5.0(2b)
10.108.0.21	UCSX-210C-M6	AA08-XSeries-Manual_...	FCH243974YZ	AA08-XSeries	AA08-XSeries-2-2	5.1(0.230
10.108.0.26	UCSX-210C-M6	ansible-coh-Intel-4G-Co...	FCH243974Z3	AA08-XSeries	AA08-XSeries-2-3	5.0(2b)
	UCSX-210C-M6		FCH243974V3	AA08-XSeries	AA08-XSeries-2-4	5.0(1c)
10.29.149.248	UCSC-C220-M5L	Cohesity-ROBO-C220-P...	WZP24130MEV		C220-WZP24130MEV	4.1(3f)

Step 3. Make sure the Cohesity Data Cloud is installed on the node.



```
Cohesity Version: 6.6.0d_u6_release-20221204_c03629f0
Product Name: UCS-X210CM6SN15
Hostname: chassis-fch250671p5-node-1
Node IPv4:
Node IPv6:
Link Local IPv4: 169.254.7.197
Link Local IPv6: fe80::2860:7dff:fec9:7544

FOR LOCAL ACCESS, PLEASE CONNECT TO THE SAME SWITCH AS THE NODE AND USE THE
LINK LOCAL IP ADDRESS. ENTER THE IP IN YOUR BROWSER TO ACCESS THE COHESITY UI.

chassis-fch250671p5-node-1 login: _
```

Step 4. Login to the node with the username <cohesity> and password <received from Cohesity>.

Step 5. Edit the network configuration through the network configuration script:

```
sudo ~/bin/network/configure_network.sh.
```

Step 6. Select option 2 Configure IP Address on interface.

Step 7. Select default interface bond0.

Step 8. Enter the IP Address, Interface Prefix, and Gateway.

Step 9. Select the default MTU to 1500.

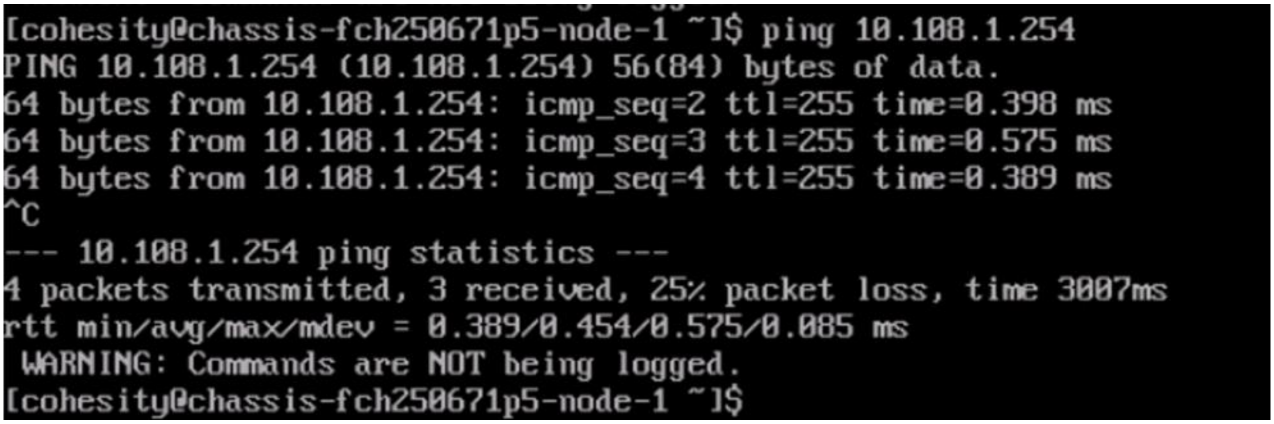
Step 10. Select Y/Yes to make the interface active.

Step 11. Quit the configure_network script by entering option 12.

Step 12. Test the network is working properly by pinging the default gateway. You can also verify the IP address configuration by issuing the following command:

```
ip addr
```

Step 13. When network is configured, make sure the OS IP is reachable.



```
[cohesity@chassis-fch250671p5-node-1 ~]$ ping 10.108.1.254
PING 10.108.1.254 (10.108.1.254) 56(84) bytes of data.
64 bytes from 10.108.1.254: icmp_seq=2 ttl=255 time=0.398 ms
64 bytes from 10.108.1.254: icmp_seq=3 ttl=255 time=0.575 ms
64 bytes from 10.108.1.254: icmp_seq=4 ttl=255 time=0.389 ms
^C
--- 10.108.1.254 ping statistics ---
4 packets transmitted, 3 received, 25% packet loss, time 3007ms
rtt min/avg/max/mdev = 0.389/0.454/0.575/0.085 ms
 WARNING: Commands are NOT being logged.
[cohesity@chassis-fch250671p5-node-1 ~]$
```

Setup Cohesity Cluster

Procedure 1. Cohesity Cluster Configuration Across all Cisco UCS X210c Nodes

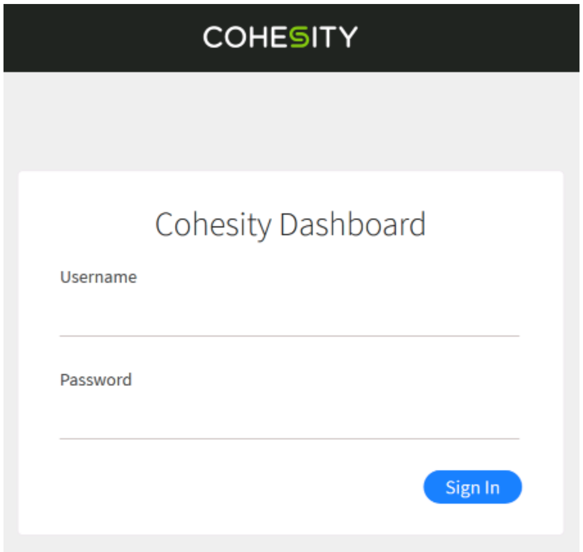
The initial setup of the Cohesity cluster is done through the configuration webpage, which is now accessible on the first node, at the IP address which was configured in the previous steps. Prior to beginning the initial cluster configuration, make sure that all Cohesity nodes which are to be included in the cluster have completed their initial software installation, and are fully booted. Additionally, make sure that all necessary IP addresses for all interfaces are known and assigned, and the DNS round-robin entries have been created.

Step 1. In a web browser, navigate to the IP address of the first Cohesity node, which was configured in the previous steps. For example: http://10.108.1.32

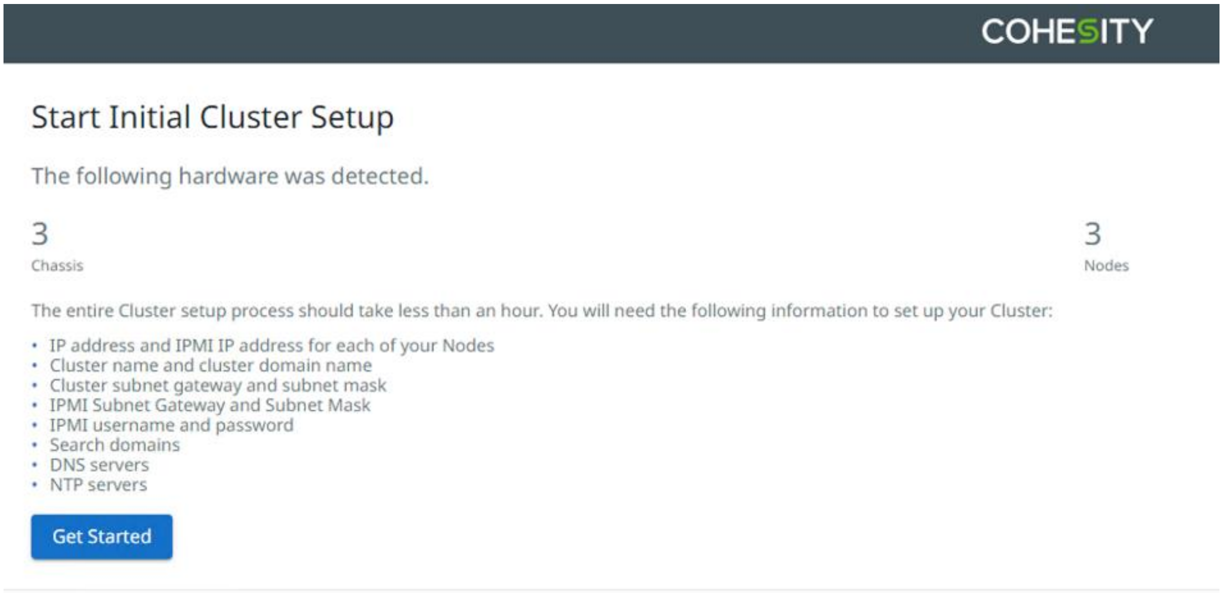
Step 2. Accept any SSL warnings or errors due to the default self-signed certificate on the server and proceed to the Cohesity Dashboard login screen.

Step 3. Log into the Cohesity Dashboard webpage using the following credentials:

- Username: admin
- Password: <password>



Step 4. When the Start Initial Cluster Setup screen appears, make sure that the number of nodes detected matches the number of servers you intend to install for this cluster. Click Get Started.



Start Initial Cluster Setup

The following hardware was detected.

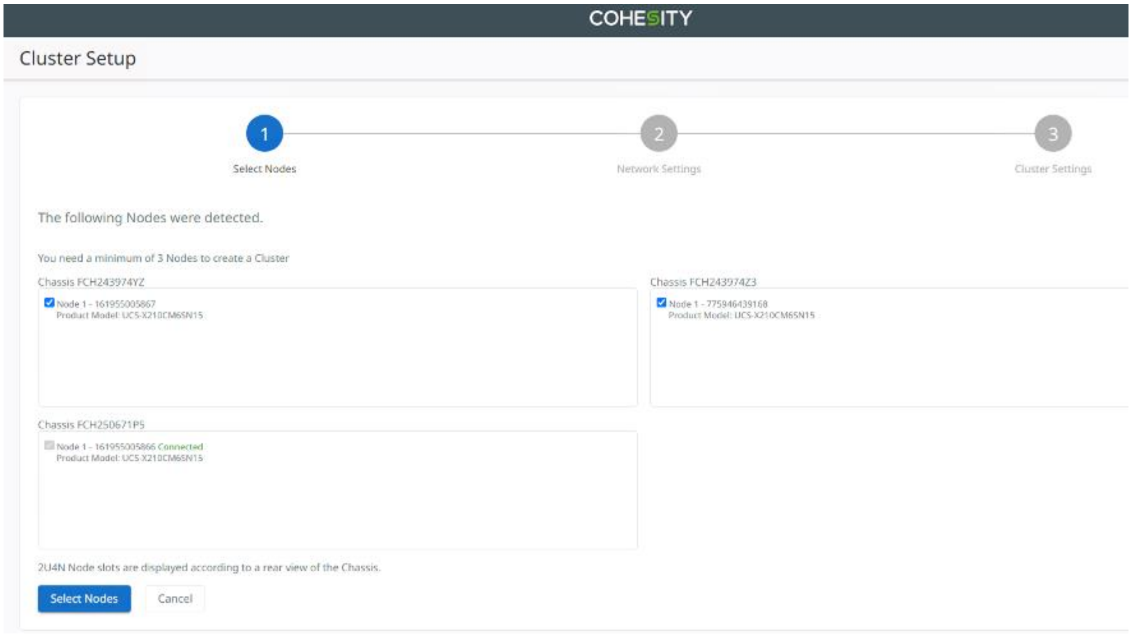
3 Chassis

3 Nodes

The entire Cluster setup process should take less than an hour. You will need the following information to set up your Cluster:

- IP address and IPMI IP address for each of your Nodes
- Cluster name and cluster domain name
- Cluster subnet gateway and subnet mask
- IPMI Subnet Gateway and Subnet Mask
- IPMI username and password
- Search domains
- DNS servers
- NTP servers

Step 5. Select the nodes to add to this initial cluster, then click Select Nodes.



The following Nodes were detected.

You need a minimum of 3 Nodes to create a Cluster

Chassis FCH243974YZ

☑ Node 1 - 161955005867
Product Model: UCS-X210CM6SN15

Chassis FCH243974Z3

☑ Node 1 - 775946439168
Product Model: UCS-X210CM6SN15

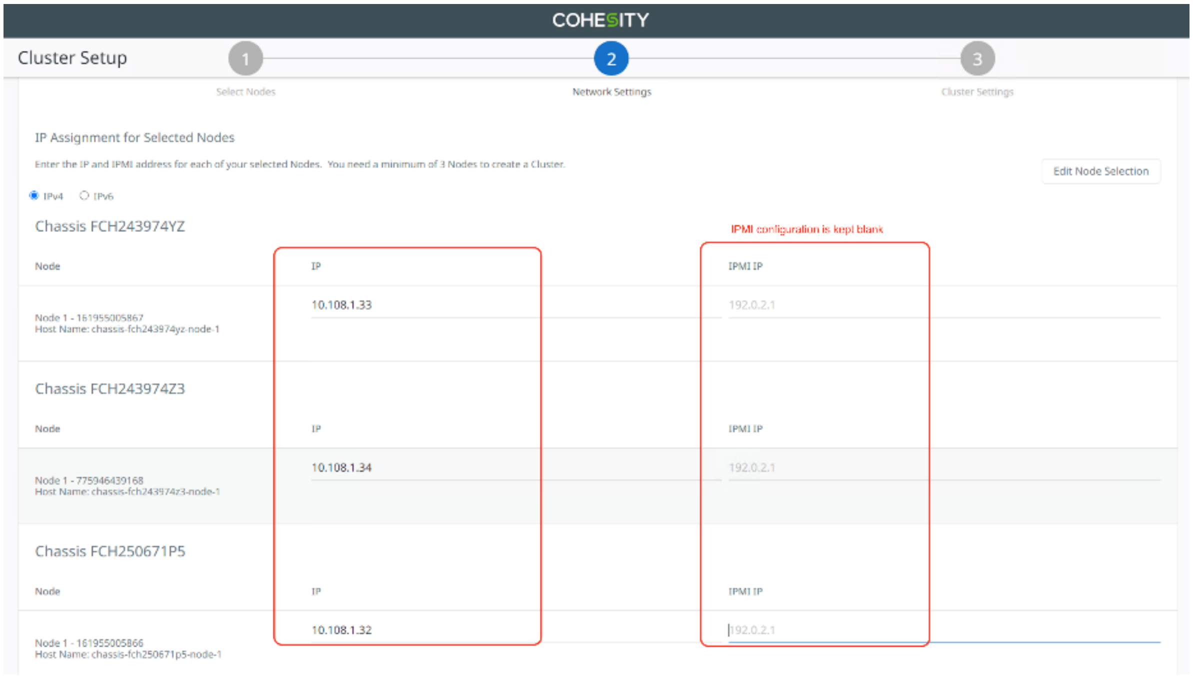
Chassis FCH250671P5

□ Node 1 - 161955005866 Connected
Product Model: UCS-X210CM6SN15

2U4N Node slots are displayed according to a rear view of the Chassis.

Step 6. Enter the OS IP determined for each node, do not add any IPMI IP.

Note: With Cohesity release 6.6 or later, all Cisco UCS servers connected to Cisco UCS Fabric Interconnects do not require any IPMI configuration. Keep the IPMI Field blank and delete any pre-existing IPMI IP during cluster creation.



IP Assignment for Selected Nodes

Enter the IP and IPMI address for each of your selected Nodes. You need a minimum of 3 Nodes to create a Cluster.

● IPv4 ○ IPv6

Chassis FCH243974YZ

Node	IP	IPMI IP
Node 1 - 161955005867 Host Name: chassis-fch243974yz-node-1	10.108.1.33	192.0.2.1

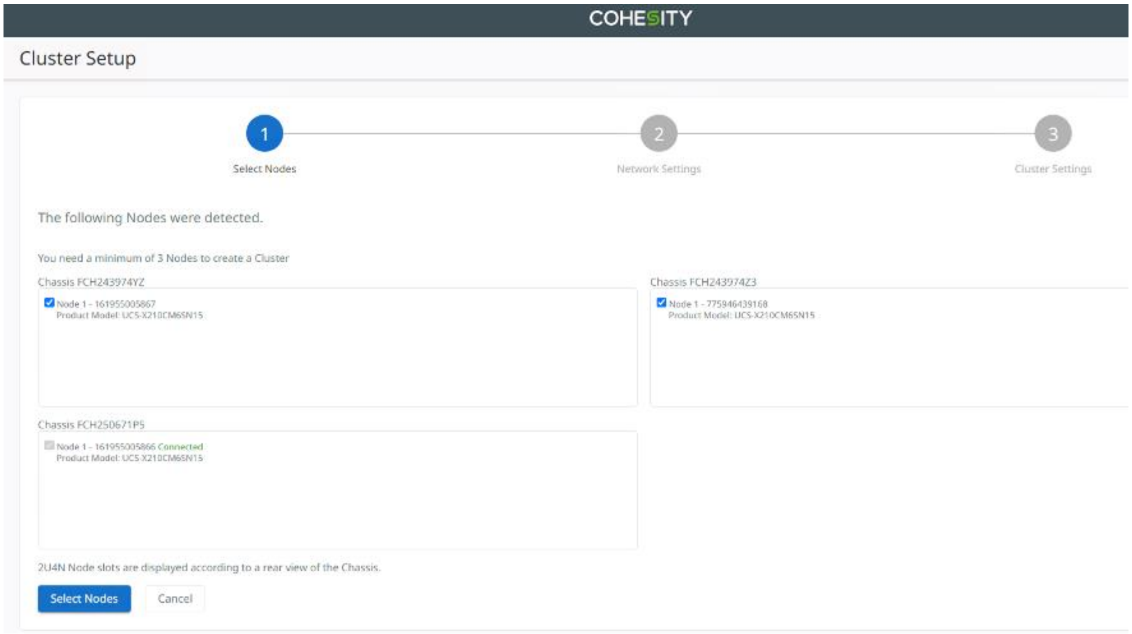
Chassis FCH243974Z3

Node	IP	IPMI IP
Node 1 - 775946439168 Host Name: chassis-fch243974z3-node-1	10.108.1.34	192.0.2.1

Chassis FCH250671P5

Node	IP	IPMI IP
Node 1 - 161955005866 Host Name: chassis-fch250671p5-node-1	10.108.1.32	192.0.2.1

Step 7. Select the nodes to add to this initial cluster, then click Select Nodes.



Cluster Setup

The following Nodes were detected.

You need a minimum of 3 Nodes to create a Cluster

Chassis FCH243974YZ

☑ Node 1 - 161955005867
Product Model: UCS-X210CM6SN15

Chassis FCH243974Z3

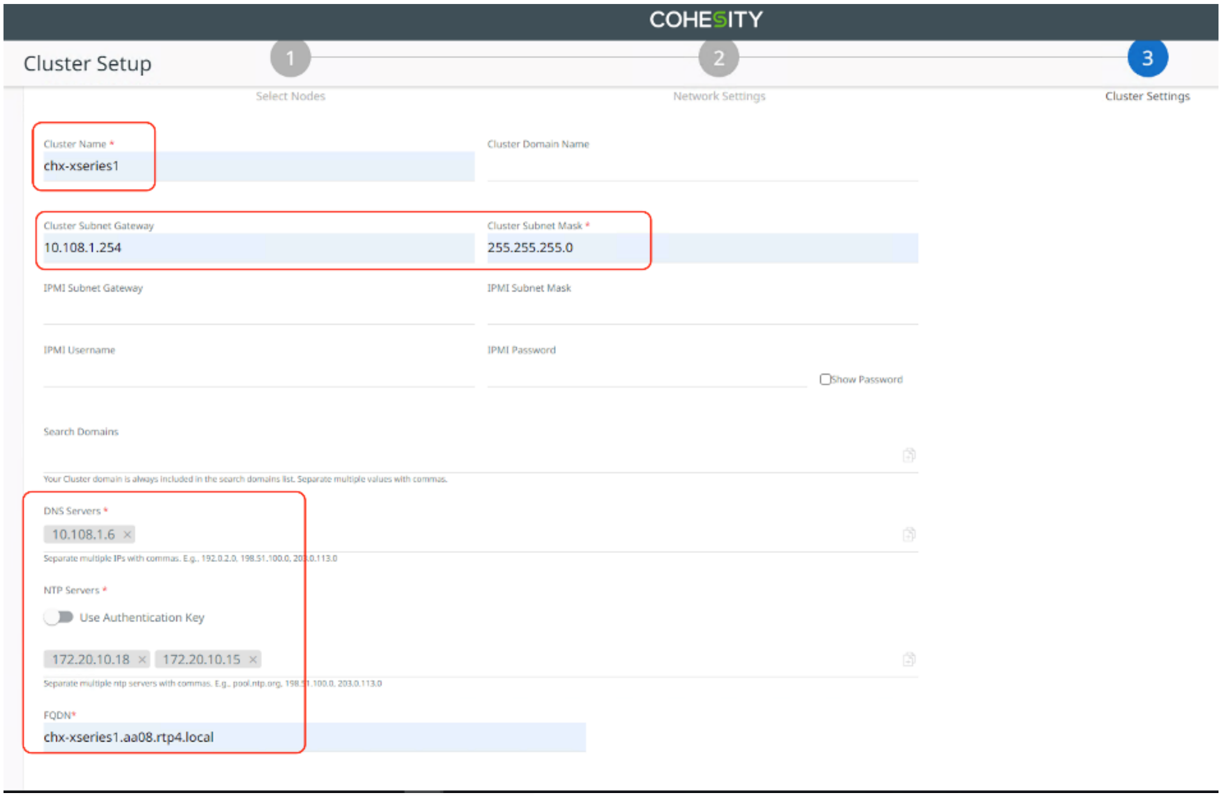
☑ Node 1 - 775946439168
Product Model: UCS-X210CM6SN15

Chassis FCH250671P5

□ Node 1 - 161955005866 Connected
Product Model: UCS-X210CM6SN15

2U4N Node slots are displayed according to a rear view of the Chassis.

Step 8. Enter the Cluster Subnet, Gateway, DNS, NTP, Virtual IP and FQDN details and click Create Cluster.



Cluster Name *: chx-xseries1

Cluster Domain Name:

Cluster Subnet Gateway: 10.108.1.254

Cluster Subnet Mask *: 255.255.255.0

IPMI Subnet Gateway:

IPMI Subnet Mask:

IPMI Username:

IPMI Password: □ Show Password

Search Domains:

Your Cluster domain is always included in the search domains list. Separate multiple values with commas.

DNS Servers *: 10.108.1.6 ×

Separate multiple IPs with commas. E.g., 192.0.2.0, 198.51.100.0, 203.0.113.0

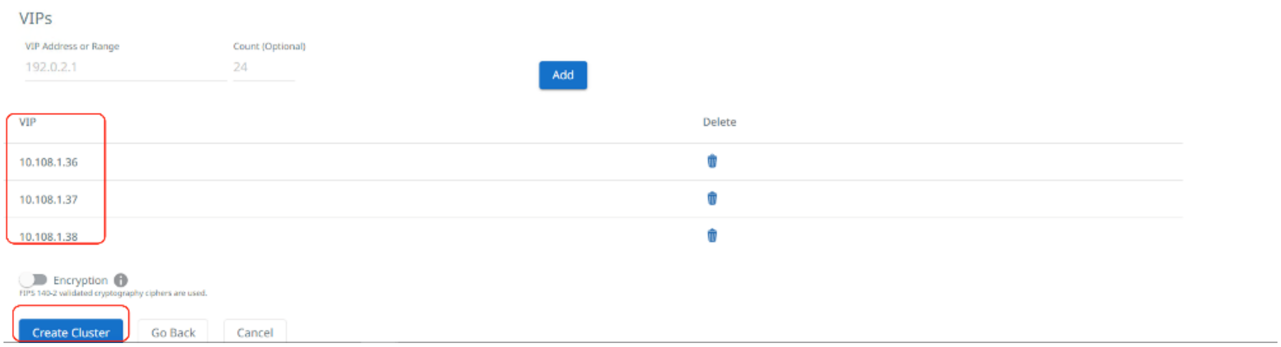
NTP Servers *

Use Authentication Key

172.20.10.18 × 172.20.10.15 ×

Separate multiple ntp servers with commas. E.g., pool.ntp.org, 198.51.100.0, 203.0.113.0

FQDN*: chx-xseries1.aa08.rtp4.local



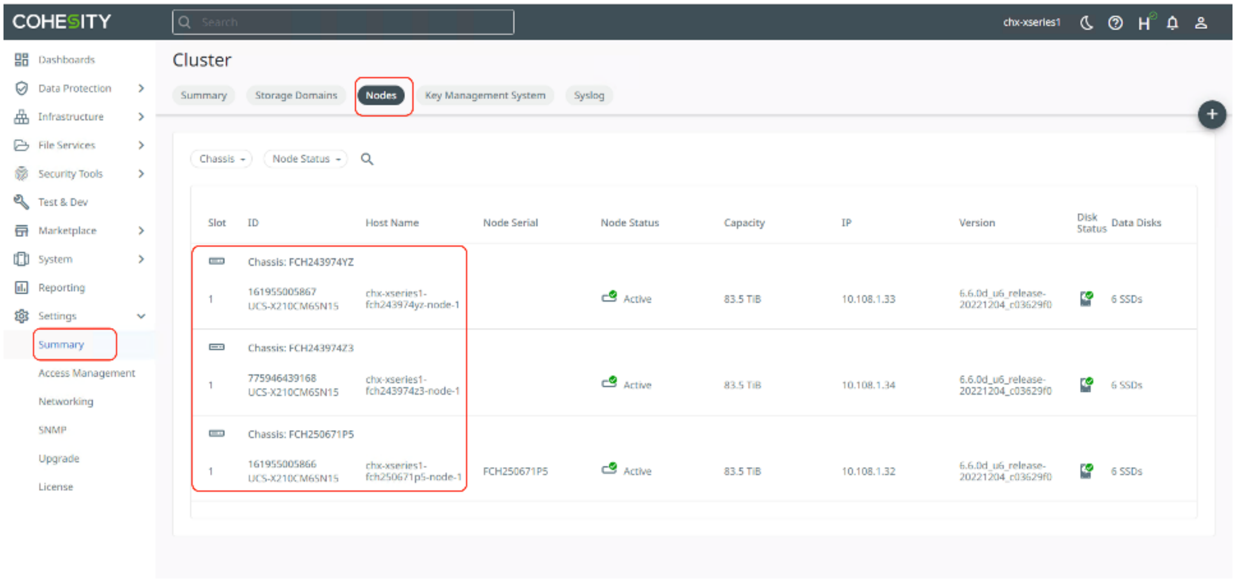
VIP	Delete
10.108.1.36	🗑
10.108.1.37	🗑
10.108.1.38	🗑

Encryption

FIPS 140-2 validated cryptography ciphers are used.

Step 9. When the cluster is created, login with FQDN and register the cluster to Cohesity Helios.

Step 10. Confirm the 3x Cisco UCS X210c nodes are configured for the new Cohesity Data Cloud cluster.



Slot	ID	Host Name	Node Serial	Node Status	Capacity	IP	Version	Disk Status	Data Disks
	Chassis: FCH243974YZ								
1	161955005867 UCS-X210CM6SN15	chx-xseries1-fch243974yz-node-1		Active	83.5 TiB	10.108.1.33	6.6.0d_u6_release-20221204_c03629f0	✓	6 SSDs
	Chassis: FCH243974Z3								
1	775946439168 UCS-X210CM6SN15	chx-xseries1-fch243974z3-node-1		Active	83.5 TiB	10.108.1.34	6.6.0d_u6_release-20221204_c03629f0	✓	6 SSDs
	Chassis: FCH250671P5								
1	161955005866 UCS-X210CM6SN15	chx-xseries1-fch250671p5-node-1	FCH250671P5	Active	83.5 TiB	10.108.1.32	6.6.0d_u6_release-20221204_c03629f0	✓	6 SSDs

Cluster Expansion and Firmware Upgrades

This chapter contains the following:

- Cohesity Cluster Expansion
- Upgrade Firmware and Software

Cohesity Cluster Expansion

This section details how you can expand the existing cluster deployed on Cisco X-Series modular system. Each Cisco UCS X-Series modular system accommodates up to eight (8) All NVMe Cisco UCS X210c nodes, providing compute and storage. You can add a new Cisco UCS X210c node in the existing Cisco UCS X-Series chassis, derive a Server Profile from existing Template, install the Cohesity OS from Cisco Intersight, and expand the cluster in Cohesity Helios.

This does not require any additional cabling or network configuration. In the event you want to expand to additional Cisco UCS X-Series chassis, you can add a new Cisco UCSX-Series Chassis to the existing Cisco UCS Fabric Interconnect, clone the chassis and server profile, and attach to the new Cisco UCS X-Series chassis. IT requires minimal effort to expand both compute and storage.

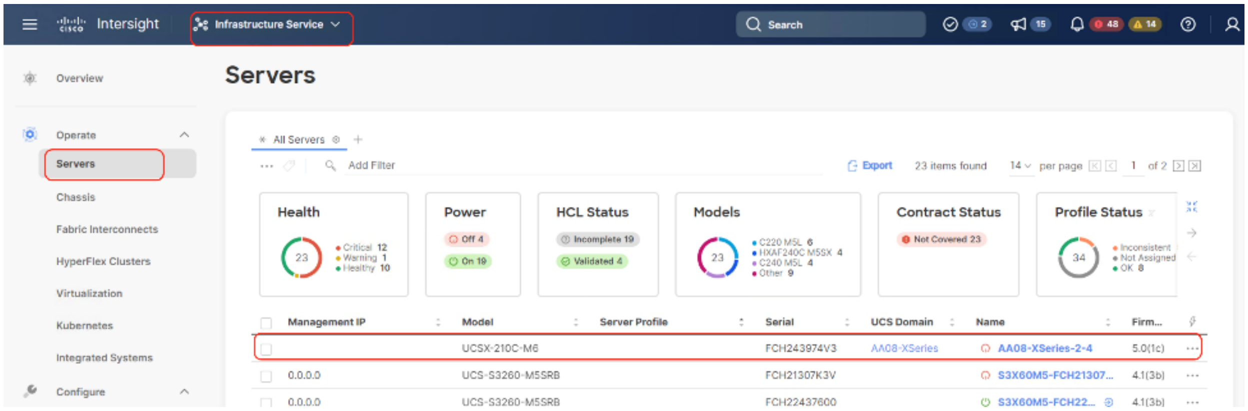
Derive and Deploy Server Profile

Procedure 1. Derive and Deploy Server Profile to New Node

Note: Skip this step if you already have a Cisco Intersight account.

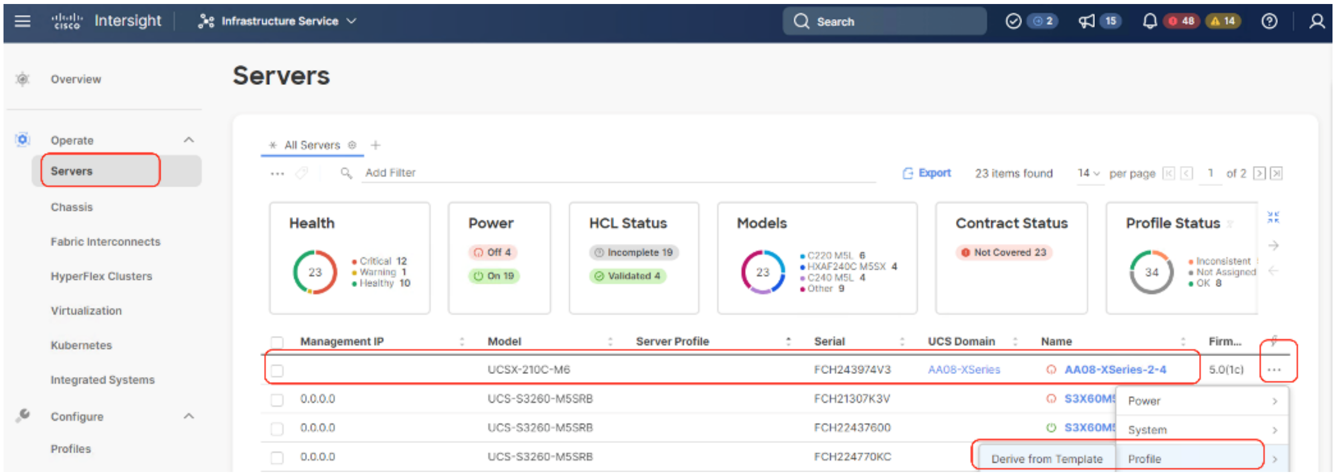
Step 1. Go to https://intersight.com/, click Infrastructure Service and click Server. Identify the new Cisco UCS X210c node provisioned for the existing Cohesity Data Cloud cluster expansion.

Note: This Cisco UCS X210c node does not have a Server Profile attached to it.



Management IP	Model	Server Profile	Serial	UCS Domain	Name	Firm...
	UCSX-210C-M6		FCH243974V3	AA08-XSeries	AA08-XSeries-2-4	5.0(1c)
0.0.0.0	UCS-S3260-M5SRB		FCH21307K3V		S3X60M5-FCH21307...	4.1(3b)
0.0.0.0	UCS-S3260-M5SRB		FCH22437600		S3X60M5-FCH22...	4.1(3b)

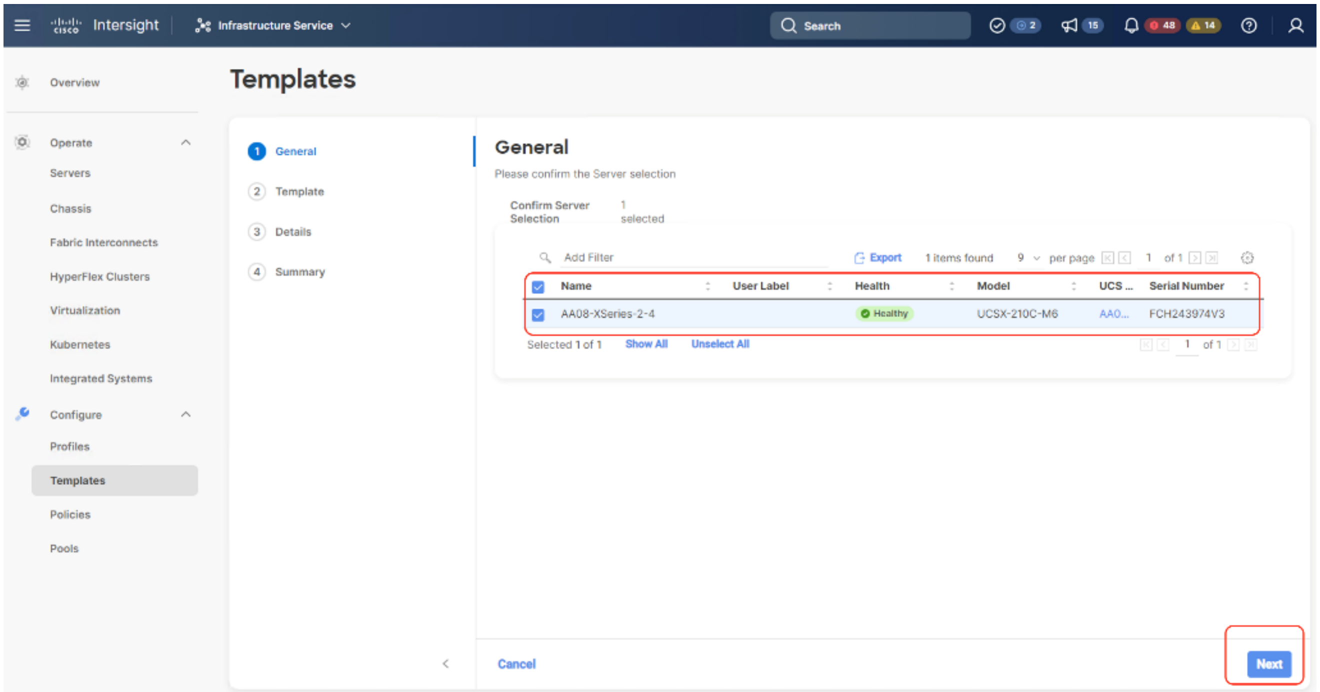
Step 2. Click "… ", select Profile and Derive Profile from the template.



Servers

Management IP	Model	Server Profile	Serial	UCS Domain	Name	Firm...
	UCSX-210C-M6		FCH243974V3	AA08-XSeries	AA08-XSeries-2-4	5.0(1c)
0.0.0.0	UCS-S3260-M5SRB		FCH21307K3V		S3X60M5	
0.0.0.0	UCS-S3260-M5SRB		FCH22437600		S3X60M5	
0.0.0.0	UCS-S3260-M5SRB		FCH224770KC			

Step 3. The Cisco UCS X210c node is displayed, click Next.



Templates

General

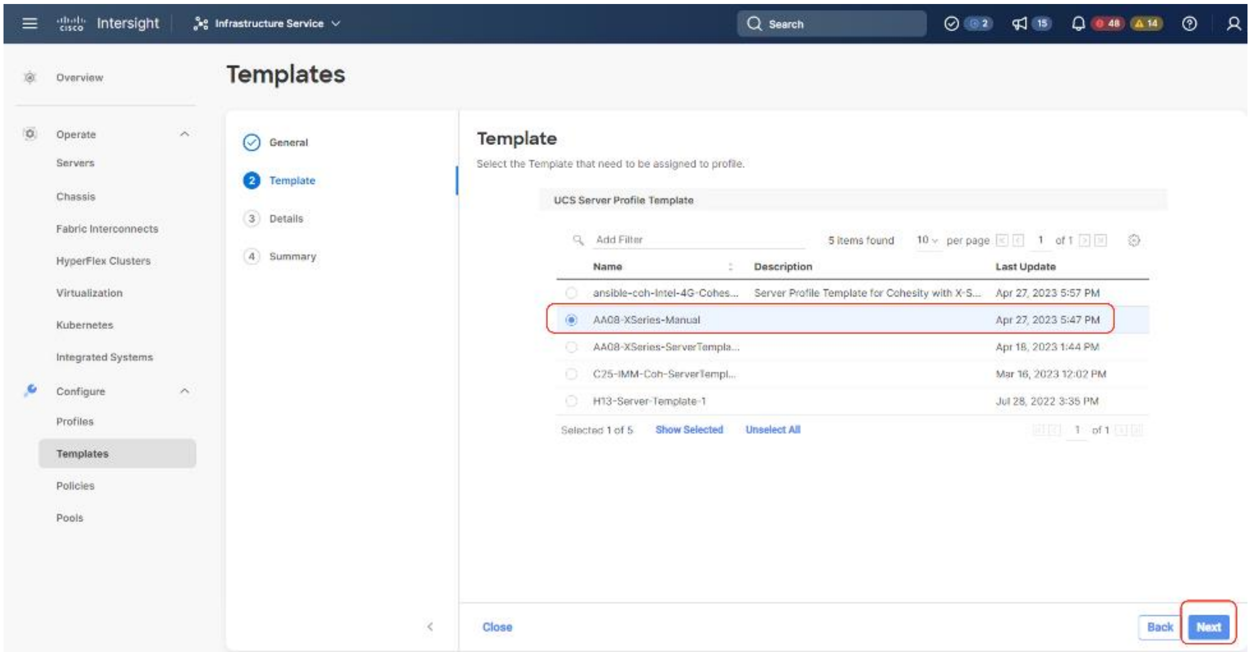
Please confirm the Server selection

Confirm Server Selection 1 selected

☑	Name	User Label	Health	Model	UCS ...	Serial Number
☑	AA08-XSeries-2-4		Healthy	UCSX-210C-M6	AA0...	FCH243974V3

Selected 1 of 1

Step 4. Select the Server Profile template created to deploy the Cisco UCS X210c node for the Cohesity Data Cloud cluster and click Next.



Templates

Template

Select the Template that need to be assigned to profile.

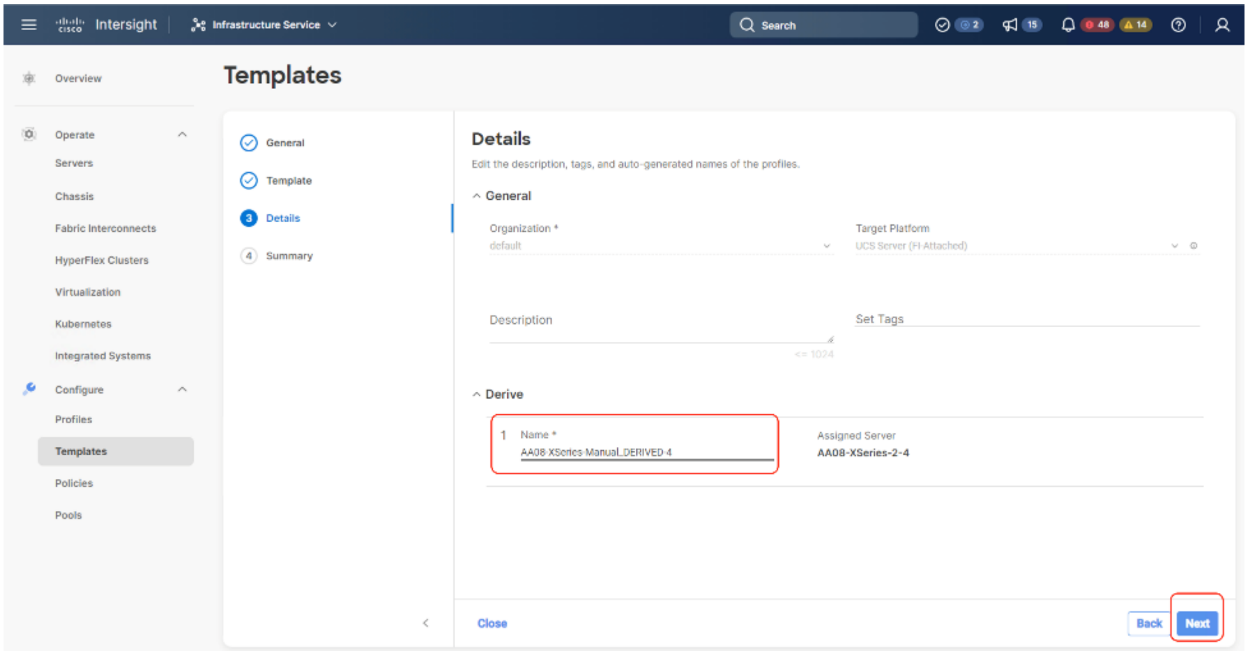
UCS Server Profile Template

Add Filter — 5 items found — 10 per page — 1 of 1

	Name	Description	Last Update
○	ansible-coh-Intel-4G-Cohes...	Server Profile Template for Cohesity with X-S...	Apr 27, 2023 5:57 PM
●	AA08-XSeries-Manual		Apr 27, 2023 5:47 PM
○	AA08-XSeries-ServerTempla...		Apr 18, 2023 1:44 PM
○	C25-IMM-Coh-ServerTempl...		Mar 16, 2023 12:02 PM
○	H13-Server-Template-1		Jul 28, 2022 3:35 PM

Selected 1 of 5 — Show Selected — Unselect All — 1 of 1

Step 5. Rename the Derive profile and click Next.



Templates

Details

Edit the description, tags, and auto-generated names of the profiles.

General

Organization *: default

Target Platform: UCS Server (FI-Attached)

Description

<= 1024

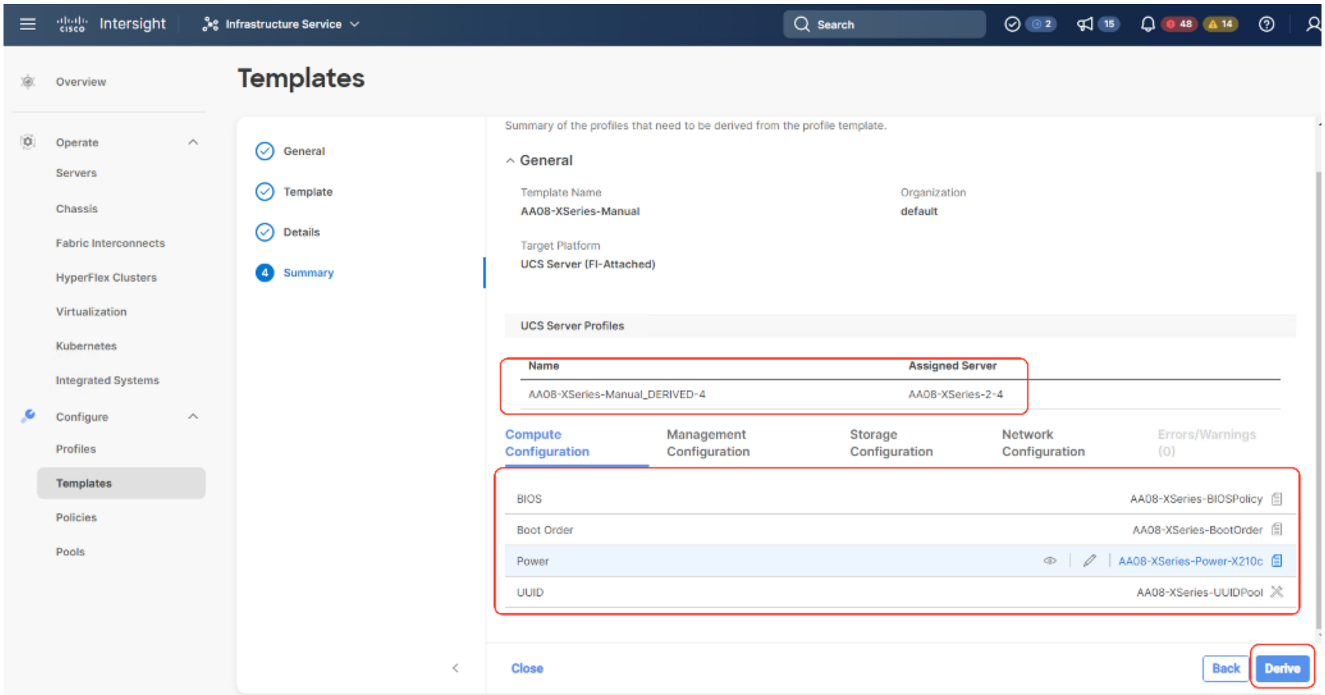
Set Tags

Derive

1 Name *: AA08-XSeries-Manual_DERIVED-4

Assigned Server: AA08-XSeries-2-4

Step 6. Verify the policies and click Derive.



Templates

Summary of the profiles that need to be derived from the profile template.

General

Template Name: AA08-XSeries-Manual

Organization: default

Target Platform: UCS Server (FI-Attached)

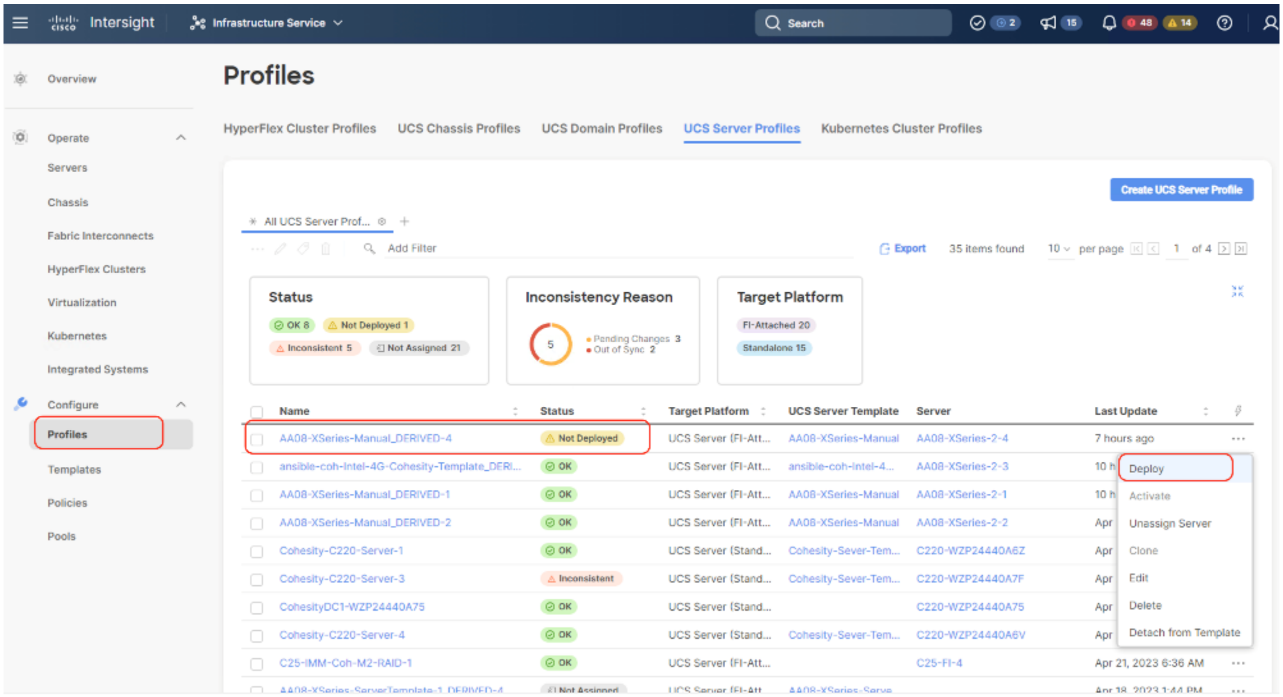
UCS Server Profiles

Name	Assigned Server
AA08-XSeries-Manual_DERIVED-4	AA08-XSeries-2-4

Compute Configuration | Management Configuration | Storage Configuration | Network Configuration | Errors/Warnings (0)

BIOS	AA08-XSeries-BIOSPolicy
Boot Order	AA08-XSeries-BootOrder
Power	AA08-XSeries-Power-X210c
UUID	AA08-XSeries-UUIDPool

Step 7. When the Sever Profile is derived, go to the Servers tab, identify the Profile displayed as “Not Deployed,” click the “...” and select Deploy.



Profiles

35 items found 10 per page 1 of 4

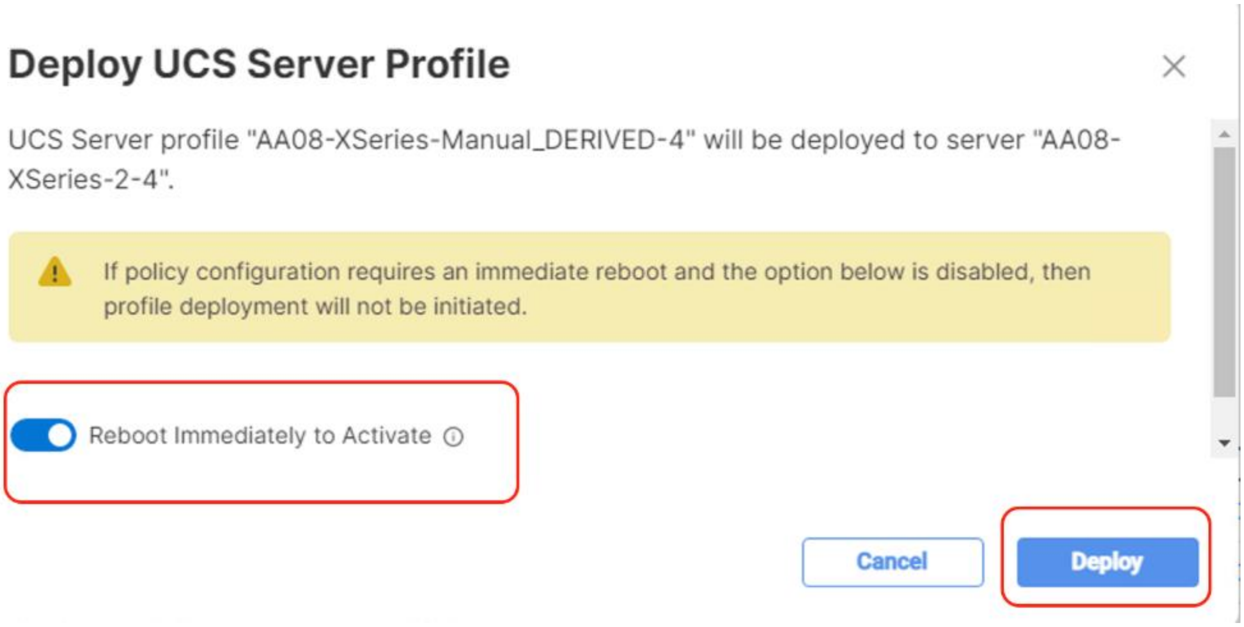
Status: OK 8, Not Deployed 1, Inconsistent 5, Not Assigned 21

Inconsistency Reason: 5 — Pending Changes 3, Out of Sync 2

Target Platform: FI-Attached 20, Standalone 15

Name	Status	Target Platform	UCS Server Template	Server	Last Update
AA08-XSeries-Manual_DERIVED-4	Not Deployed	UCS Server (FI-Att...	AA08-XSeries-Manual	AA08-XSeries-2-4	7 hours ago
ansible-coh-Intel-4G-Cohesity-Template_DERI...	OK	UCS Server (FI-Att...	ansible-coh-Intel-4...	AA08-XSeries-2-3	10 h
AA08-XSeries-Manual_DERIVED-1	OK	UCS Server (FI-Att...	AA08-XSeries-Manual	AA08-XSeries-2-1	10 h
AA08-XSeries-Manual_DERIVED-2	OK	UCS Server (FI-Att...	AA08-XSeries-Manual	AA08-XSeries-2-2	Apr
Cohesity-C220-Server-1	OK	UCS Server (Stand...	Cohesity-Sever-Tem...	C220-WZP24440A6Z	Apr
Cohesity-C220-Server-3	Inconsistent	UCS Server (Stand...	Cohesity-Sever-Tem...	C220-WZP24440A7F	Apr
CohesityDC1-WZP24440A75	OK	UCS Server (Stand...		C220-WZP24440A75	Apr
Cohesity-C220-Server-4	OK	UCS Server (Stand...	Cohesity-Sever-Tem...	C220-WZP24440A6V	Apr
C25-IMM-Coh-M2-RAID-1	OK	UCS Server (FI-Att...		C25-FI-4	Apr 21, 2023 6:36 AM
AA08-XSeries-ServerTemplate-1_DERIVED-4	Not Assigned	UCS Server (FI-Att...	AA08-XSeries-Serve		Apr 18, 2023 1:44 PM

Step 8. On the Deploy Profile confirmation screen, enable Reboot Immediately to Activate and click Deploy.



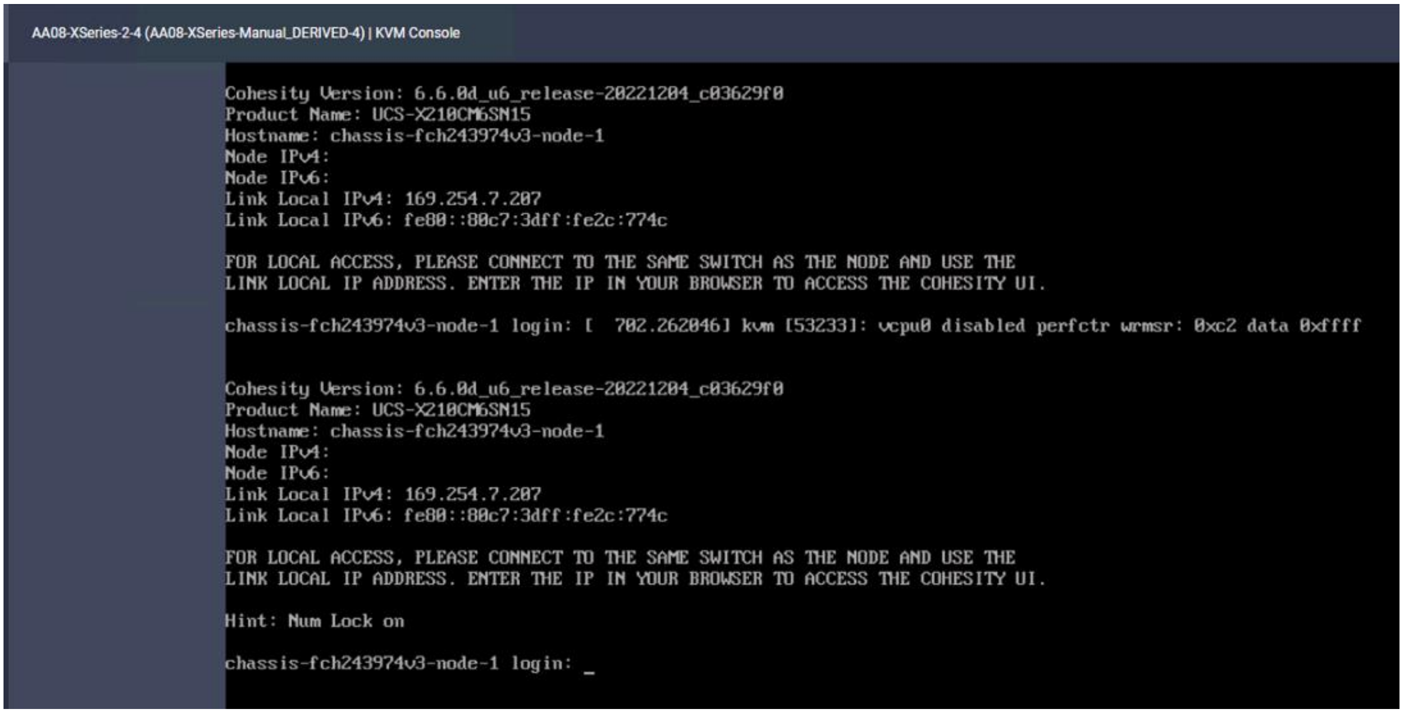
Deploy UCS Server Profile

UCS Server profile "AA08-XSeries-Manual_DERIVED-4" will be deployed to server "AA08-XSeries-2-4".

⚠ If policy configuration requires an immediate reboot and the option below is disabled, then profile deployment will not be initiated.

● Reboot Immediately to Activate ⓘ

Step 9. When the profile is successfully deployed, install the OS using Cisco Intersight, provided in section Cohesity Data Cloud Node Configuration on Cisco UCS X210c Nodes. The screenshot below displays on the Cohesity Data Cloud OS deployed on the new Cisco UCS X210c node:



AA08-XSeries-2-4 (AA08-XSeries-Manual_DERIVED-4) | KVM Console

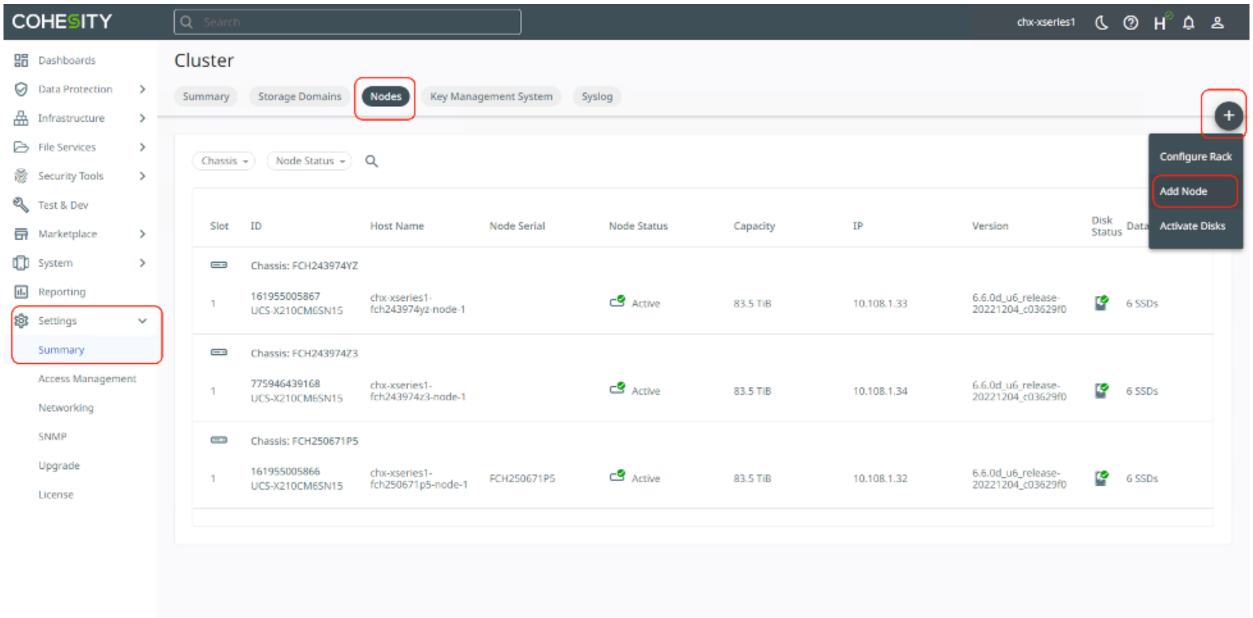
```
Cohesity Version: 6.6.0d_u6_release-20221204_c03629f0
Product Name: UCS-X210CM6SN15
Hostname: chassis-fch243974v3-node-1
Node IPv4:
Node IPv6:
Link Local IPv4: 169.254.7.207
Link Local IPv6: fe80::80c7:3dff:fe2c:774c

FOR LOCAL ACCESS, PLEASE CONNECT TO THE SAME SWITCH AS THE NODE AND USE THE
LINK LOCAL IP ADDRESS. ENTER THE IP IN YOUR BROWSER TO ACCESS THE COHESITY UI.

chassis-fch243974v3-node-1 login: [  702.262046] kvm [53233]: vcpu0 disabled perfctr wrmsr: 0xc2 data 0xffff


Cohesity Version: 6.6.0d_u6_release-20221204_c03629f0
Product Name: UCS-X210CM6SN15
Hostname: chassis-fch243974v3-node-1
Node IPv4:
Node IPv6:
Link Local IPv4: 169.254.7.207
Link Local IPv6: fe80::80c7:3dff:fe2c:774c

FOR LOCAL ACCESS, PLEASE CONNECT TO THE SAME SWITCH AS THE NODE AND USE THE
LINK LOCAL IP ADDRESS. ENTER THE IP IN YOUR BROWSER TO ACCESS THE COHESITY UI.

Hint: Num Lock on

chassis-fch243974v3-node-1 login: _
```

Expand Cohesity Cluster

Procedure 1. Expand existing Cluster through Cohesity Helios

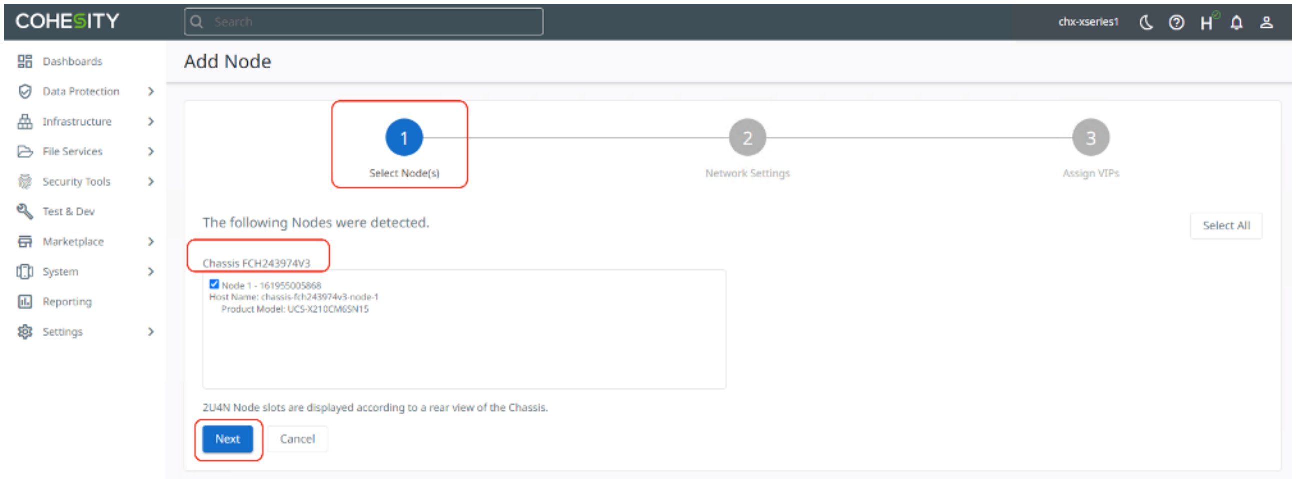
When the new Cisco X210c node is configured with the Cohesity Data Cloud OS, the Cohesity Cluster is expanded to add the Cisco UCS X210c node. This process expands the compute and storage on the Cohesity Data Cloud Cluster.

Step 1. Access the Cohesity Data Cloud Cluster dashboard. Go to Summary > Nodes and click the + sign and select Add Node.



Slot	ID	Host Name	Node Serial	Node Status	Capacity	IP	Version	Disk Status	Data
	Chassis: FCH243974YZ								
1	161955005867 UCS-X210CM6SN15	chx-xseries1-fch243974yz-node-1		Active	83.5 TiB	10.108.1.33	6.6.0d_u6_release-20221204_c03629f0		6 SSDs
	Chassis: FCH243974Z3								
1	775946439168 UCS-X210CM6SN15	chx-xseries1-fch243974z3-node-1		Active	83.5 TiB	10.108.1.34	6.6.0d_u6_release-20221204_c03629f0		6 SSDs
	Chassis: FCH250671P5								
1	161955005866 UCS-X210CM6SN15	chx-xseries1-fch250671p5-node-1	FCH250671P5	Active	83.5 TiB	10.108.1.32	6.6.0d_u6_release-20221204_c03629f0		6 SSDs

Step 2. The Cohesity Data Cloud cluster automatically identifies the new node. Confirm the serial number of the node, which was configured for the cluster expansion, select the node, and click Next.



The following Nodes were detected.

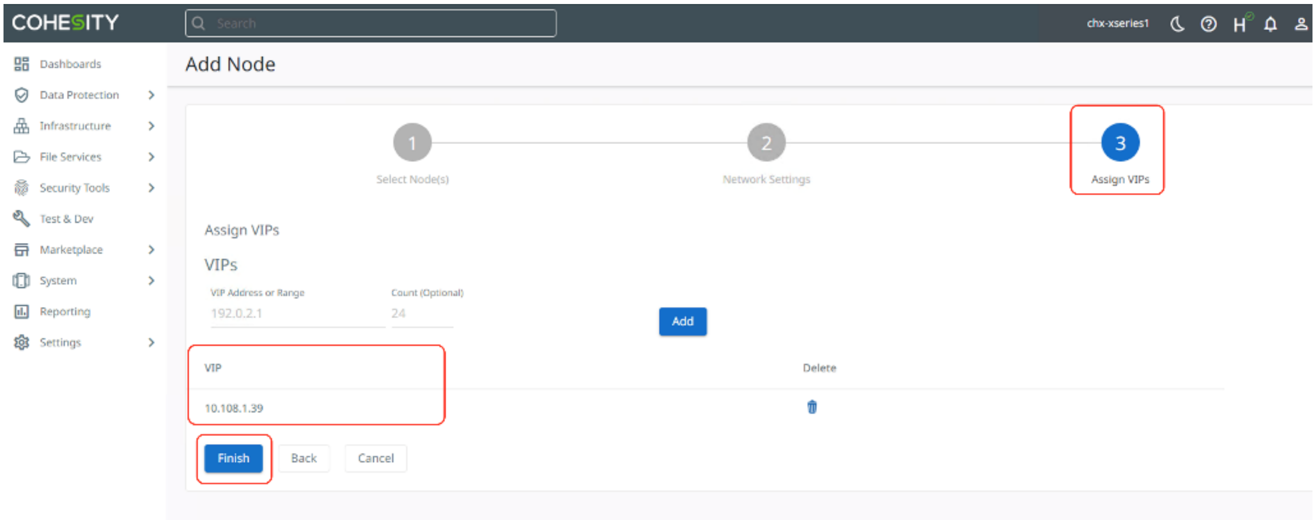
Chassis FCH243974V3

☑ Node 1 - 161955005868
Host Name: chassis-fch243974v3-node-1
Product Model: UCS-X210CM6SN15

2U4N Node slots are displayed according to a rear view of the Chassis.

Step 3. Add the available Node IP and click Next.

Step 4. Add the Virtual IP as configured on DNS and click Finish.



Add Node

1 Select Node(s) — 2 Network Settings — 3 Assign VIPs

Assign VIPs

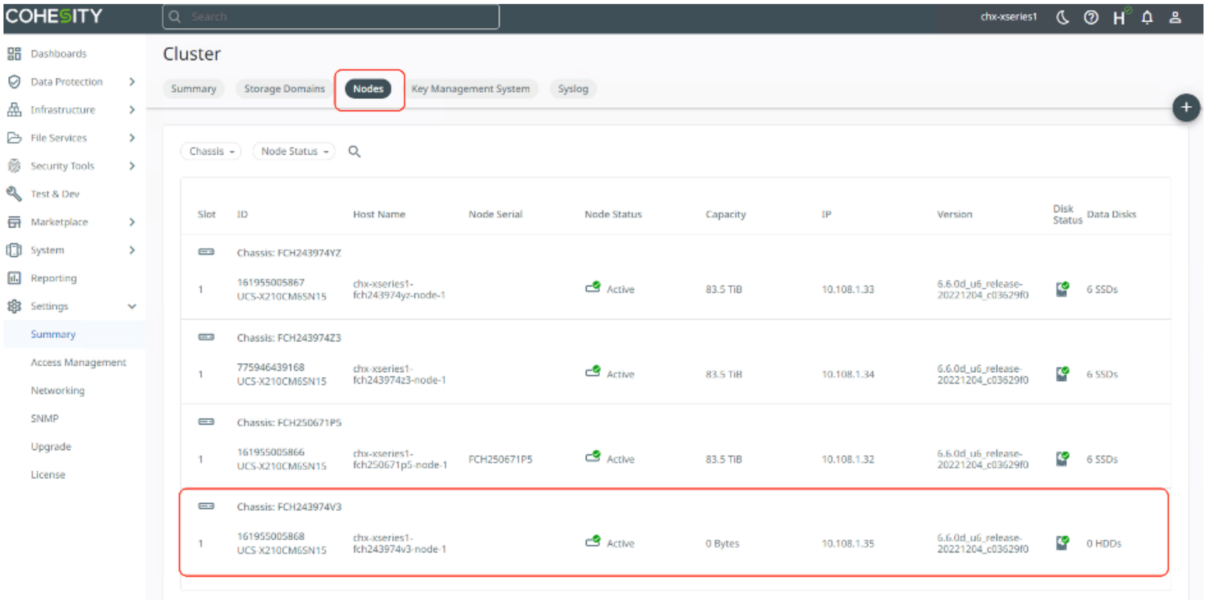
VIPs

VIP Address or Range: 192.0.2.1
Count (Optional): 24
Add

VIP	Delete
10.108.1.39	🗑

Finish | Back | Cancel

Step 5. The Cohesity Data Cloud Cluster is expanded from three to four nodes of All NVMe Cisco UCS X210c server. It takes some time to assimilate the All NVMe drives of the new Cisco UCS X210c node to the existing Cohesity Data Cloud Cluster.



Cluster

Slot	ID	Host Name	Node Serial	Node Status	Capacity	IP	Version	Disk Status	Data Disks
	Chassis: FCH243974YZ								
1	161955005867 UCS-X210CM6SN15	chx-xseries1- fch243974yz-node-1		Active	83.5 TiB	10.108.1.33	6.6.0d_u6_release- 20221204_c03629f0	✓	6 SSDs
	Chassis: FCH243974Z3								
1	775946439168 UCS-X210CM6SN15	chx-xseries1- fch243974z3-node-1		Active	83.5 TiB	10.108.1.34	6.6.0d_u6_release- 20221204_c03629f0	✓	6 SSDs
	Chassis: FCH250671P5								
1	161955005866 UCS-X210CM6SN15	chx-xseries1- fch250671p5-node-1	FCH250671P5	Active	83.5 TiB	10.108.1.32	6.6.0d_u6_release- 20221204_c03629f0	✓	6 SSDs
	Chassis: FCH243974V3								
1	161955005868 UCS-X210CM6SN15	chx-xseries1- fch243974v3-node-1		Active	0 Bytes	10.108.1.35	6.6.0d_u6_release- 20221204_c03629f0	✓	0 HDDs

Upgrade Firmware and Software

Note: With the Intersight SaaS Management platform, the server firmware upgrade does not require you to download any firmware bundles to a local repository. When the suggested firmware upgrade request is issued, it automatically downloads the selected firmware and starts the upgrade process.

For detailed instructions to perform firmware upgrades, see Firmware Management in Intersight

Firmware for Cisco UCS X-Series Modular System with the Cohesity Data Cloud can be upgraded for the following main use cases:

- Upgrade Cisco UCS X-Series X210c node firmware in combination with software upgrades for the Cohesity Data Cloud. Cohesity non-distributive upgrades manage the sequential server reboot, allowing upgrades of Cisco UCS X210c node firmware during a Cohesity software upgrade. Because each node is upgrading sequentially, the Cohesity Cluster upgrade time increases by about 25 to 30 minutes per Cohesity node.

- Upgrade Cisco UCS X-Series X210c node independent of the Cohesity Data Cloud software upgrades. In this process, you need to manually reboot the Cisco UCS X210 node and verify that the Cohesity node is back online after the server firmware upgrade. Verify that each node is rebooted serially, and that the first node comes back online and joins the Cohesity cluster before initiating a reboot on the second node. This process can also be done in parallel across all Cisco UCS X210c nodes but requires maintenance windows for Cohesity Cluster downtime.

Note: Prior to upgrading Cisco UCS X210C node firmware, you are required to upgrade the Cisco Fabric Interconnect and Cisco UCS X-9108 IFM modules.

To successfully upgrade the Cisco UCS Fabric Interconnect and IO module firmware, see: https://intersight.com/help/saas/resources/Upgrading_Fabric_Interconnect_Firmware_imm#procedure

Note: During the upgrade of the Intersight Managed Fabric Interconnect, the fabric interconnect traffic evacuation is enabled by default. The fabric interconnect traffic evacuation evacuates all traffic that flows through the fabric interconnect from all servers attached to it, and the traffic will fail over to the peer fabric interconnect for fail over vNICs with no disruptions in the network.

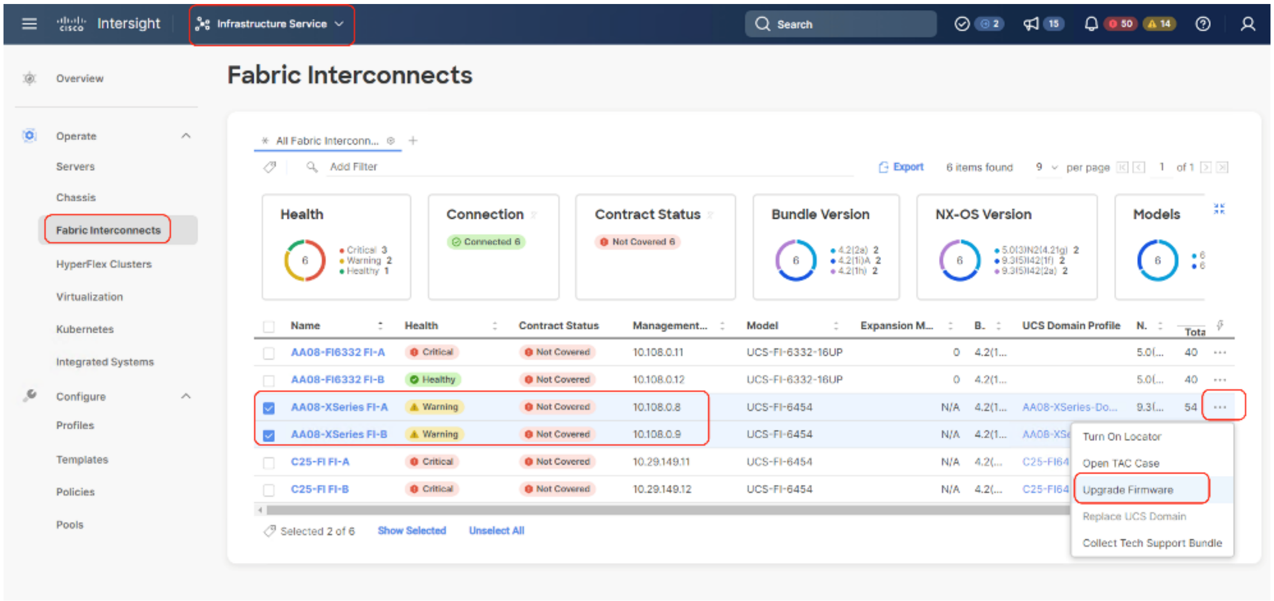
Upgrade Fabric Interconnect and Intelligent Fabric Module

Procedure 1. Upgrade Cisco UCS Fabric Interconnect and Cisco UCSX 9108 IFM Firmware

This procedure expands on the high-level procedure to upgrade firmware of the Cisco UCS Fabric Interconnect in Intersight Managed Mode (IMM). For more details, go to: https://intersight.com/help/saas/resources/Upgrading_Fabric_Interconnect_Firmware_imm#before_you_begin

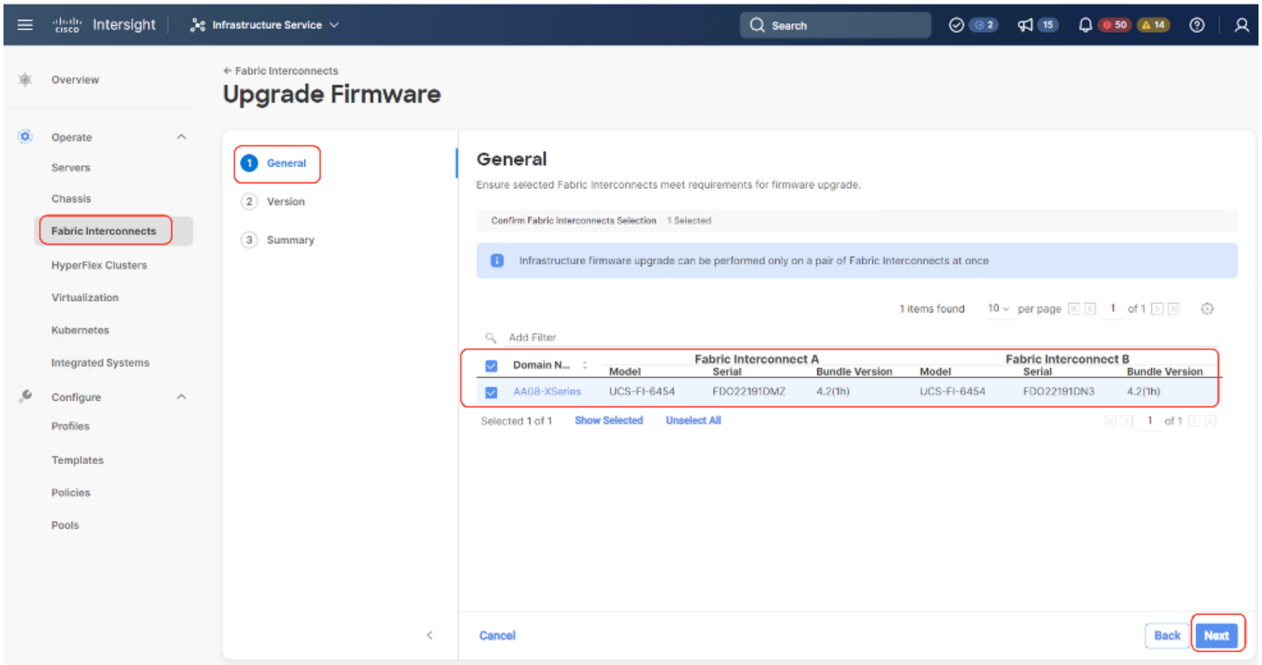
Note: During the firmware upgrade of Cisco UCS Fabric interconnects, the Cisco UCSX 9108 IFM modules installed in the Cisco UCS X-Series chassis will be automatically upgraded.

Step 1. Login to https://Intersight.com, click Infrastructure Service, then click Fabric Interconnects, and select the Fabric Interconnect Pair (IMM) . Click "..." and select Upgrade Firmware.



	Name	Health	Contract Status	Management...	Model	Expansion M...	B.	UCS Domain Profile	N.	Tota
□	AA08-FI6332 FI-A	Critical	Not Covered	10.108.0.11	UCS-FI-6332-16UP	0	4.2(1...		5.0(...	40
□	AA08-FI6332 FI-B	Healthy	Not Covered	10.108.0.12	UCS-FI-6332-16UP	0	4.2(1...		5.0(...	40
☑	AA08-XSeries FI-A	Warning	Not Covered	10.108.0.8	UCS-FI-6454	N/A	4.2(1...	AA08-XSeries-Do...	9.3(...	54
☑	AA08-XSeries FI-B	Warning	Not Covered	10.108.0.9	UCS-FI-6454	N/A	4.2(1...	AA08-XSe		
□	C25-FI FI-A	Critical	Not Covered	10.29.149.11	UCS-FI-6454	N/A	4.2(...	C25-FI64		
□	C25-FI FI-B	Critical	Not Covered	10.29.149.12	UCS-FI-6454	N/A	4.2(...	C25-FI64		

Step 2. Click Start and from Upgrade firmware make sure the UCS Domain Profile is selected and click Next.



Upgrade Firmware

General

Ensure selected Fabric Interconnects meet requirements for firmware upgrade.

Confirm Fabric Interconnects Selection 1 Selected

Infrastructure firmware upgrade can be performed only on a pair of Fabric Interconnects at once

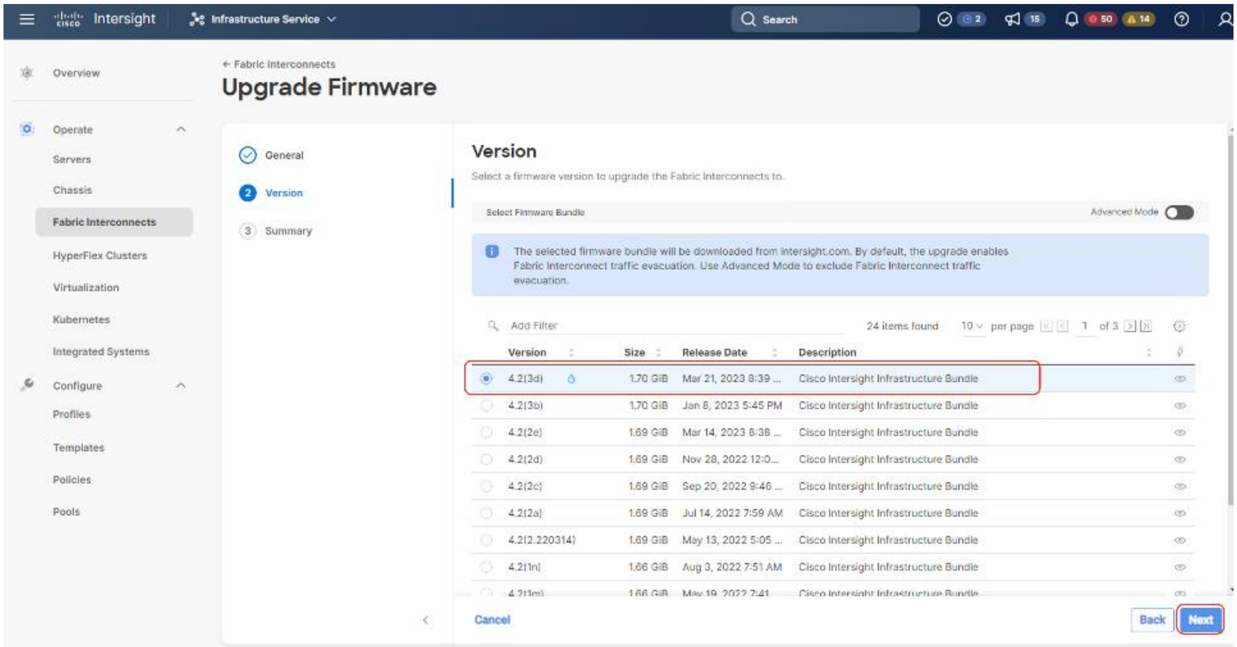
1 items found 10 per page 1 of 1

Add Filter

		Fabric Interconnect A			Fabric Interconnect B		
☑	Domain N...	Model	Serial	Bundle Version	Model	Serial	Bundle Version
☑	AA08-XSeries	UCS-FI-6454	FDO22191DMZ	4.2(1h)	UCS-FI-6454	FDO22191DN3	4.2(1h)

Selected 1 of 1 Show Selected Unselect All 1 of 1

Step 3. Select the recommended Firmware release (currently 4.2(3d)). By default, the upgrade enables the Fabric Interconnect traffic evacuation. Use Advanced Mode to exclude the Fabric Interconnect traffic evacuation.



Upgrade Firmware

Version

Select a firmware version to upgrade the Fabric Interconnects to.

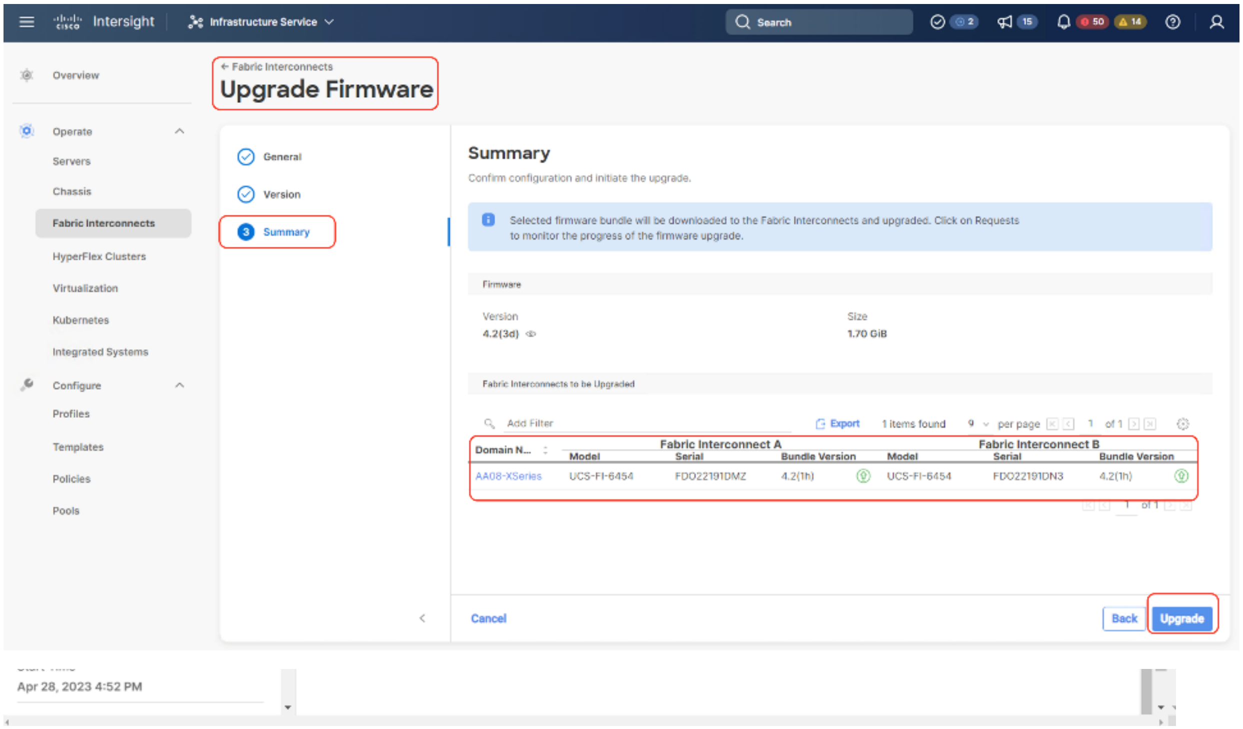
Select Firmware Bundle Advanced Mode

The selected firmware bundle will be downloaded from intersight.com. By default, the upgrade enables Fabric Interconnect traffic evacuation. Use Advanced Mode to exclude Fabric Interconnect traffic evacuation.

Add Filter 24 items found 10 per page 1 of 3

	Version	Size	Release Date	Description
●	4.2(3d)	1.70 GiB	Mar 21, 2023 8:39 ...	Cisco Intersight Infrastructure Bundle
○	4.2(3b)	1.70 GiB	Jan 8, 2023 5:45 PM	Cisco Intersight Infrastructure Bundle
○	4.2(2e)	1.69 GiB	Mar 14, 2023 8:38 ...	Cisco Intersight Infrastructure Bundle
○	4.2(2d)	1.69 GiB	Nov 28, 2022 12:0...	Cisco Intersight Infrastructure Bundle
○	4.2(2c)	1.69 GiB	Sep 20, 2022 9:46 ...	Cisco Intersight Infrastructure Bundle
○	4.2(2a)	1.69 GiB	Jul 14, 2022 7:59 AM	Cisco Intersight Infrastructure Bundle
○	4.2(2.220314)	1.69 GiB	May 13, 2022 5:05 ...	Cisco Intersight Infrastructure Bundle
○	4.2(1n)	1.66 GiB	Aug 3, 2022 7:51 AM	Cisco Intersight Infrastructure Bundle
○	4.2(1m)	1.66 GiB	May 19, 2022 7:41	Cisco Intersight Infrastructure Bundle

Step 4. On the Summary page, confirm the firmware to be upgraded and click Upgrade.



Upgrade Firmware

Summary

Confirm configuration and initiate the upgrade.

Selected firmware bundle will be downloaded to the Fabric Interconnects and upgraded. Click on Requests to monitor the progress of the firmware upgrade.

Firmware

Version
4.2(3d)

Size
1.70 GiB

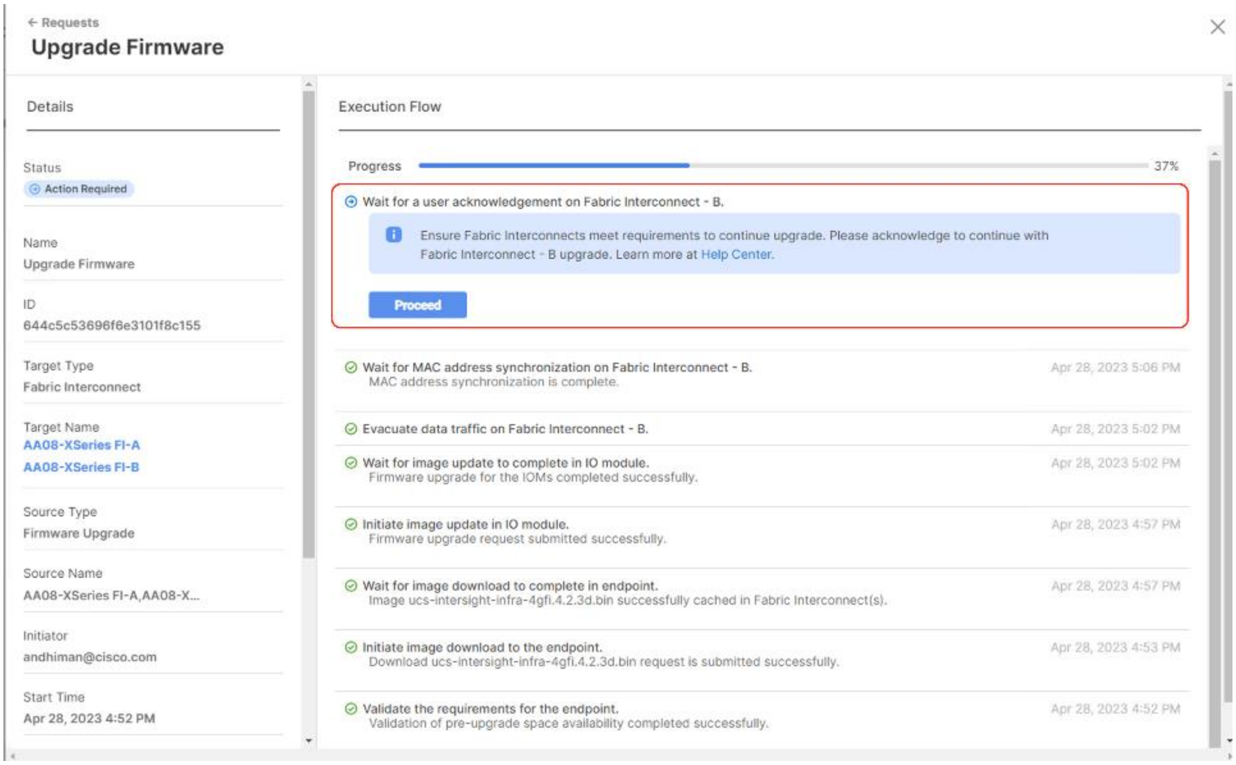
Fabric Interconnects to be Upgraded

Add Filter | Export | 1 items found | 9 per page | 1 of 1

Domain N...	Fabric Interconnect A			Fabric Interconnect B		
	Model	Serial	Bundle Version	Model	Serial	Bundle Version
AA08-XSeries	UCS-FI-6454	FDO22191DMZ	4.2(1h)	UCS-FI-6454	FDO22191DN3	4.2(1h)

Apr 28, 2023 4:52 PM

Step 6. When the Firmware downloads, acknowledge the Fabric Interconnect B upgrade, and click Continue.



← Requests

Upgrade Firmware

Details

Status
Action Required

Name
Upgrade Firmware

ID
644c5c53696f6e3101f8c155

Target Type
Fabric Interconnect

Target Name
AA08-XSeries FI-A
AA08-XSeries FI-B

Source Type
Firmware Upgrade

Source Name
AA08-XSeries FI-A,AA08-X...

Initiator
andhiman@cisco.com

Start Time
Apr 28, 2023 4:52 PM

Execution Flow

Progress 37%

Wait for a user acknowledgement on Fabric Interconnect - B.

Ensure Fabric Interconnects meet requirements to continue upgrade. Please acknowledge to continue with Fabric Interconnect - B upgrade. Learn more at Help Center.

Wait for MAC address synchronization on Fabric Interconnect - B. Apr 28, 2023 5:06 PM
MAC address synchronization is complete.

Evacuate data traffic on Fabric Interconnect - B. Apr 28, 2023 5:02 PM

Wait for image update to complete in IO module. Apr 28, 2023 5:02 PM
Firmware upgrade for the IOMs completed successfully.

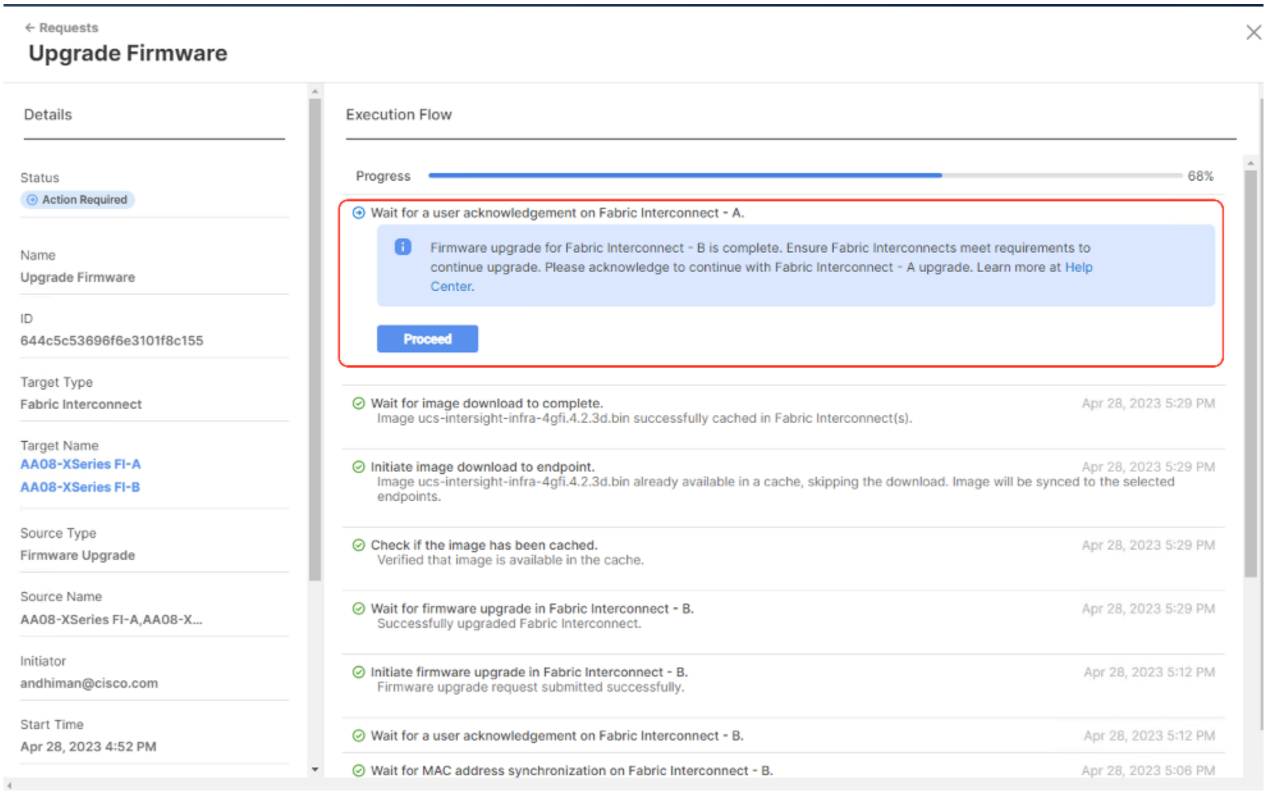
Initiate image update in IO module. Apr 28, 2023 4:57 PM
Firmware upgrade request submitted successfully.

Wait for image download to complete in endpoint. Apr 28, 2023 4:57 PM
Image ucs-intersight-infra-4gfi.4.2.3d.bin successfully cached in Fabric Interconnect(s).

Initiate image download to the endpoint. Apr 28, 2023 4:53 PM
Download ucs-intersight-infra-4gfi.4.2.3d.bin request is submitted successfully.

Validate the requirements for the endpoint. Apr 28, 2023 4:52 PM
Validation of pre-upgrade space availability completed successfully.

Step 7. When Fabric Interconnect -B is upgraded, acknowledge the Fabric Interconnect – A upgrade.



← Requests

Upgrade Firmware

Details

Status
Action Required

Name
Upgrade Firmware

ID
644c5c53696f6e3101f8c155

Target Type
Fabric Interconnect

Target Name
AA08-XSeries FI-A
AA08-XSeries FI-B

Source Type
Firmware Upgrade

Source Name
AA08-XSeries FI-A,AA08-X...

Initiator
andhiman@cisco.com

Start Time
Apr 28, 2023 4:52 PM

Execution Flow

Progress 68%

Wait for a user acknowledgement on Fabric Interconnect - A.

Firmware upgrade for Fabric Interconnect - B is complete. Ensure Fabric Interconnects meet requirements to continue upgrade. Please acknowledge to continue with Fabric Interconnect - A upgrade. Learn more at Help Center.

✓ Wait for image download to complete. — Apr 28, 2023 5:29 PM
Image ucs-intersight-infra-4gfi.4.2.3d.bin successfully cached in Fabric Interconnect(s).

✓ Initiate image download to endpoint. — Apr 28, 2023 5:29 PM
Image ucs-intersight-infra-4gfi.4.2.3d.bin already available in a cache, skipping the download. Image will be synced to the selected endpoints.

✓ Check if the image has been cached. — Apr 28, 2023 5:29 PM
Verified that image is available in the cache.

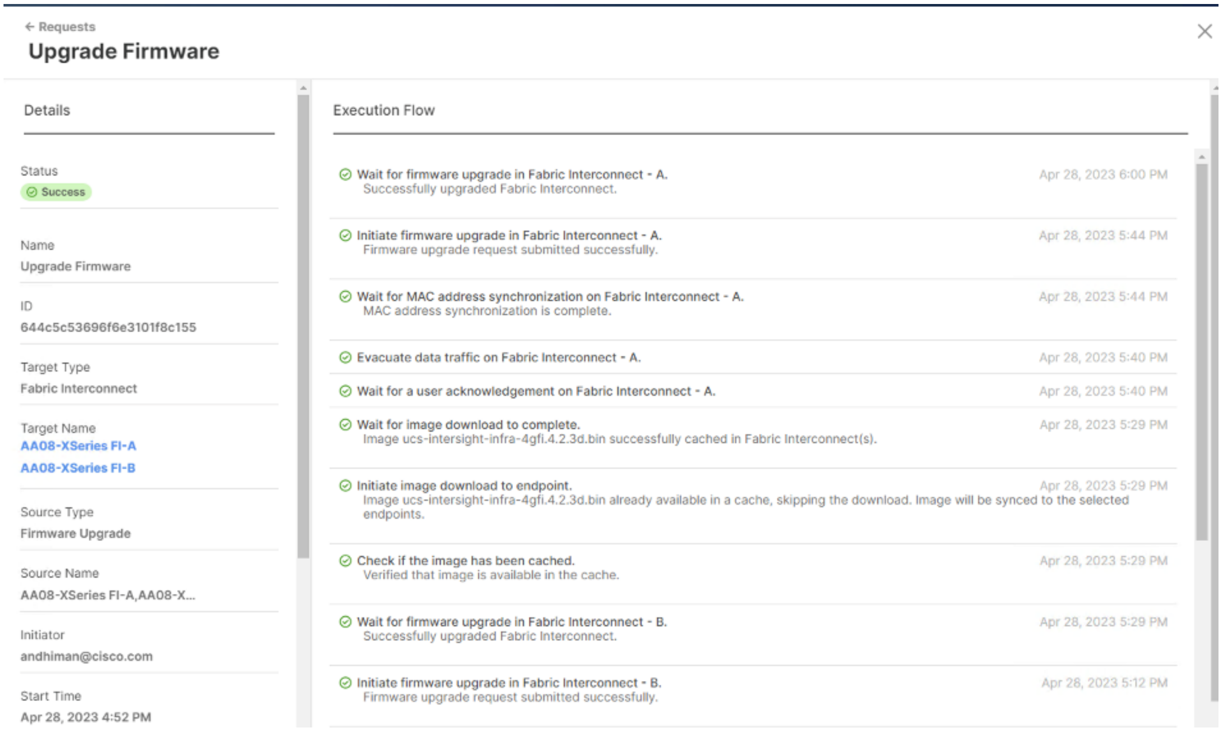
✓ Wait for firmware upgrade in Fabric Interconnect - B. — Apr 28, 2023 5:29 PM
Successfully upgraded Fabric Interconnect.

✓ Initiate firmware upgrade in Fabric Interconnect - B. — Apr 28, 2023 5:12 PM
Firmware upgrade request submitted successfully.

✓ Wait for a user acknowledgement on Fabric Interconnect - B. — Apr 28, 2023 5:12 PM

✓ Wait for MAC address synchronization on Fabric Interconnect - B. — Apr 28, 2023 5:06 PM

Step 8. Make sure the Firmware upgrade completed successfully.



← Requests

Upgrade Firmware

Details

Status
Success

Name
Upgrade Firmware

ID
644c5c53696f6e3101f8c155

Target Type
Fabric Interconnect

Target Name
AA08-XSeries FI-A
AA08-XSeries FI-B

Source Type
Firmware Upgrade

Source Name
AA08-XSeries FI-A,AA08-X...

Initiator
andhiman@cisco.com

Start Time
Apr 28, 2023 4:52 PM

Execution Flow

✓ Wait for firmware upgrade in Fabric Interconnect - A. — Apr 28, 2023 6:00 PM
Successfully upgraded Fabric Interconnect.

✓ Initiate firmware upgrade in Fabric Interconnect - A. — Apr 28, 2023 5:44 PM
Firmware upgrade request submitted successfully.

✓ Wait for MAC address synchronization on Fabric Interconnect - A. — Apr 28, 2023 5:44 PM
MAC address synchronization is complete.

✓ Evacuate data traffic on Fabric Interconnect - A. — Apr 28, 2023 5:40 PM

✓ Wait for a user acknowledgement on Fabric Interconnect - A. — Apr 28, 2023 5:40 PM

✓ Wait for image download to complete. — Apr 28, 2023 5:29 PM
Image ucs-intersight-infra-4gfi.4.2.3d.bin successfully cached in Fabric Interconnect(s).

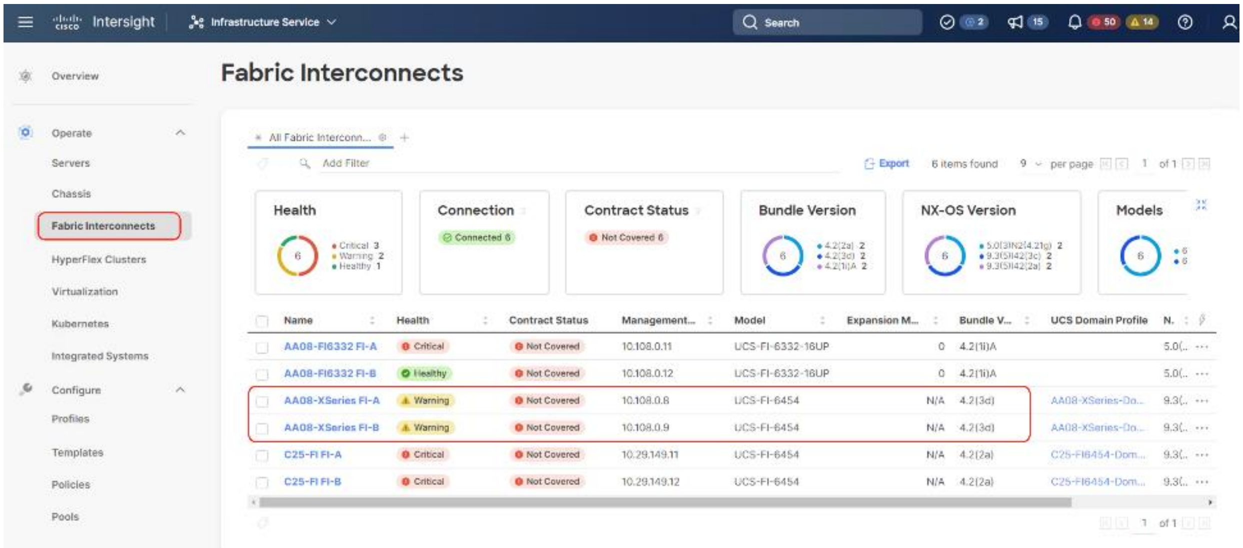
✓ Initiate image download to endpoint. — Apr 28, 2023 5:29 PM
Image ucs-intersight-infra-4gfi.4.2.3d.bin already available in a cache, skipping the download. Image will be synced to the selected endpoints.

✓ Check if the image has been cached. — Apr 28, 2023 5:29 PM
Verified that image is available in the cache.

✓ Wait for firmware upgrade in Fabric Interconnect - B. — Apr 28, 2023 5:29 PM
Successfully upgraded Fabric Interconnect.

✓ Initiate firmware upgrade in Fabric Interconnect - B. — Apr 28, 2023 5:12 PM
Firmware upgrade request submitted successfully.

Step 9. Verify the firmware upgraded on the Cisco UCS Fabric Interconnect and Cisco UCSX-9108 IFM modules.



Fabric Interconnects

6 items found 9 per page 1 of 1

Health: 6 — Critical 3, Warning 2, Healthy 1

Connection: Connected 6

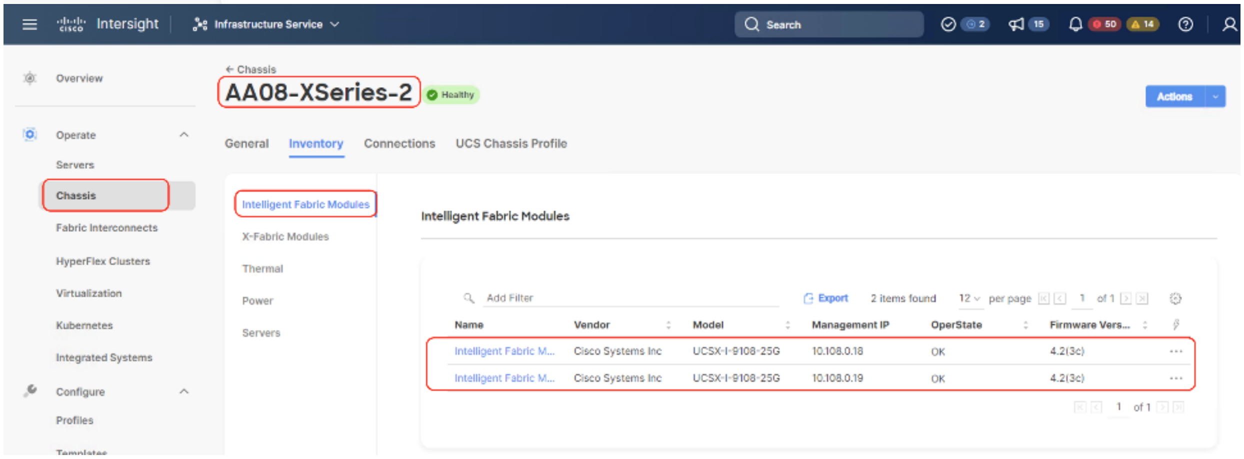
Contract Status: Not Covered 6

Bundle Version: 6 — 4.2(2a) 2, 4.2(3d) 2, 4.2(1i)A 2

NX-OS Version: 6 — 5.0(3)N2(4.21g) 2, 9.3(5)I42(3c) 2, 9.3(5)I42(2a) 2

Models: 6 — 6, 6

Name	Health	Contract Status	Management...	Model	Expansion M...	Bundle V...	UCS Domain Profile	N.
AA08-FI6332 FI-A	Critical	Not Covered	10.108.0.11	UCS-FI-6332-16UP	0	4.2(1i)A		5.0(...
AA08-FI6332 FI-B	Healthy	Not Covered	10.108.0.12	UCS-FI-6332-16UP	0	4.2(1i)A		5.0(...
AA08-XSeries FI-A	Warning	Not Covered	10.108.0.8	UCS-FI-6454	N/A	4.2(3d)	AA08-XSeries-Do...	9.3(...
AA08-XSeries FI-B	Warning	Not Covered	10.108.0.9	UCS-FI-6454	N/A	4.2(3d)	AA08-XSeries-Do...	9.3(...
C25-FI FI-A	Critical	Not Covered	10.29.149.11	UCS-FI-6454	N/A	4.2(2a)	C25-FI6454-Dom...	9.3(...
C25-FI FI-B	Critical	Not Covered	10.29.149.12	UCS-FI-6454	N/A	4.2(2a)	C25-FI6454-Dom...	9.3(...



AA08-XSeries-2 Healthy

Intelligent Fabric Modules

2 items found 12 per page 1 of 1

Name	Vendor	Model	Management IP	OperState	Firmware Vers...
Intelligent Fabric M...	Cisco Systems Inc	UCSX-I-9108-25G	10.108.0.18	OK	4.2(3c)
Intelligent Fabric M...	Cisco Systems Inc	UCSX-I-9108-25G	10.108.0.19	OK	4.2(3c)

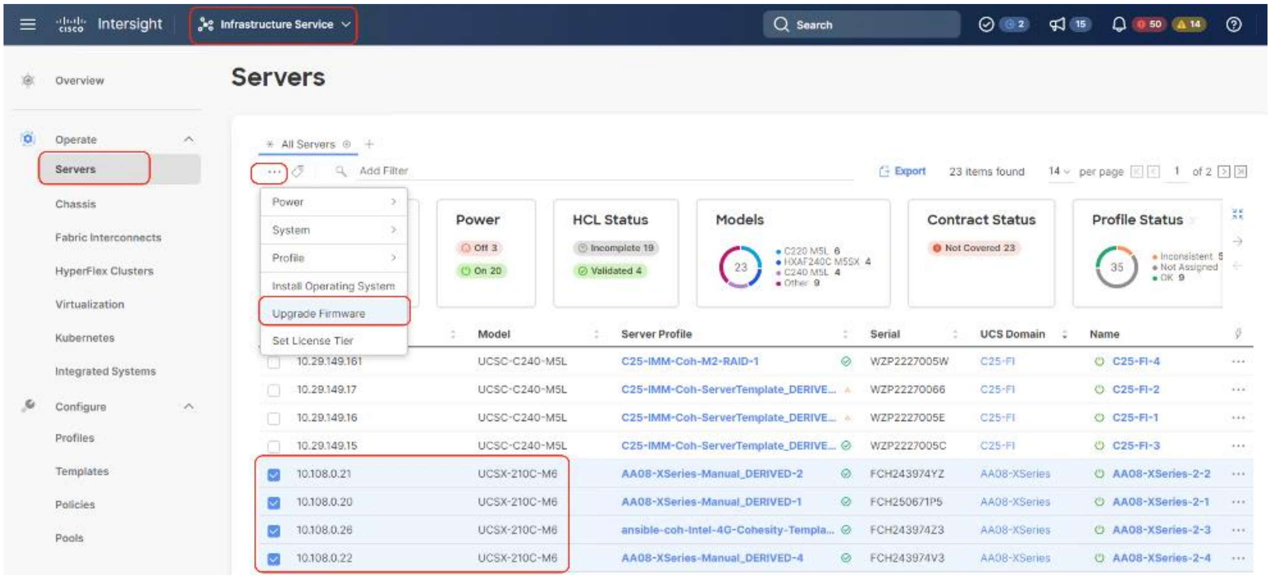
Rolling Upgrades (Node Firmware and Cohesity software)

Procedure 1. Upgrade Cisco UCS X210C Node Firmware with Cohesity Data Cloud Software Upgrade

This procedure expands on the procedure to upgrade the firmware of Cisco UCS X210C Cohesity certified nodes with Cohesity Data Cloud Cluster software upgrade.

Note: Before starting the upgrade procedure, make sure the recommended Cisco UCS X210C firmware is compatible with the Cohesity Data Cloud version.

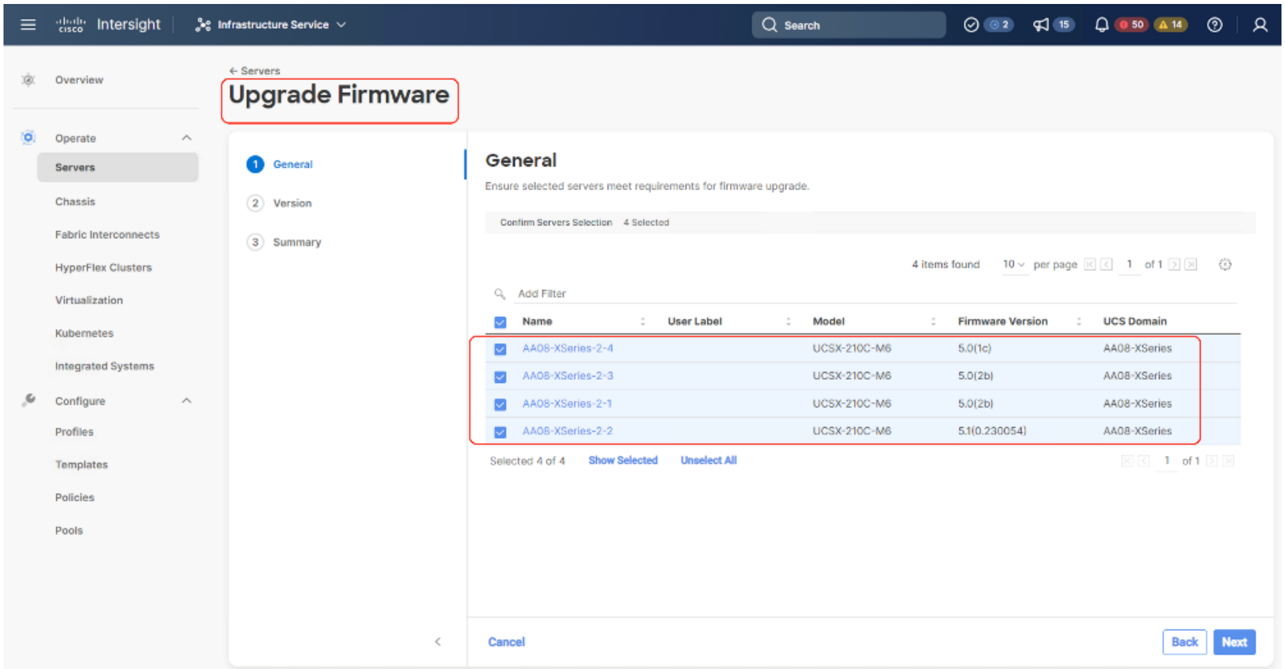
Step 1. Login to https://Intersight.com, click Infrastructure Service, then click Servers. Select the Cisco UCS X210c nodes that are part of the Cohesity Data Cloud cluster. Click the ... icon and select Upgrade Firmware.



Servers

		Model	Server Profile	Serial	UCS Domain	Name
□	10.29.149.161	UCSC-C240-M5L	C25-IMM-Coh-M2-RAID-1	WZP2227005W	C25-FI	C25-FI-4
□	10.29.149.17	UCSC-C240-M5L	C25-IMM-Coh-ServerTemplate_DERIVE...	WZP22270066	C25-FI	C25-FI-2
□	10.29.149.16	UCSC-C240-M5L	C25-IMM-Coh-ServerTemplate_DERIVE...	WZP2227005E	C25-FI	C25-FI-1
□	10.29.149.15	UCSC-C240-M5L	C25-IMM-Coh-ServerTemplate_DERIVE...	WZP2227005C	C25-FI	C25-FI-3
☑	10.108.0.21	UCSX-210C-M6	AA08-XSeries-Manual_DERIVED-2	FCH243974YZ	AA08-XSeries	AA08-XSeries-2-2
☑	10.108.0.20	UCSX-210C-M6	AA08-XSeries-Manual_DERIVED-1	FCH250671P5	AA08-XSeries	AA08-XSeries-2-1
☑	10.108.0.26	UCSX-210C-M6	ansible-coh-Intel-4G-Cohesity-Templa...	FCH243974Z3	AA08-XSeries	AA08-XSeries-2-3
☑	10.108.0.22	UCSX-210C-M6	AA08-XSeries-Manual_DERIVED-4	FCH243974V3	AA08-XSeries	AA08-XSeries-2-4

Step 2. Make sure all Cisco UCS X210C nodes are selected for upgrade. Click Next.



Upgrade Firmware

General

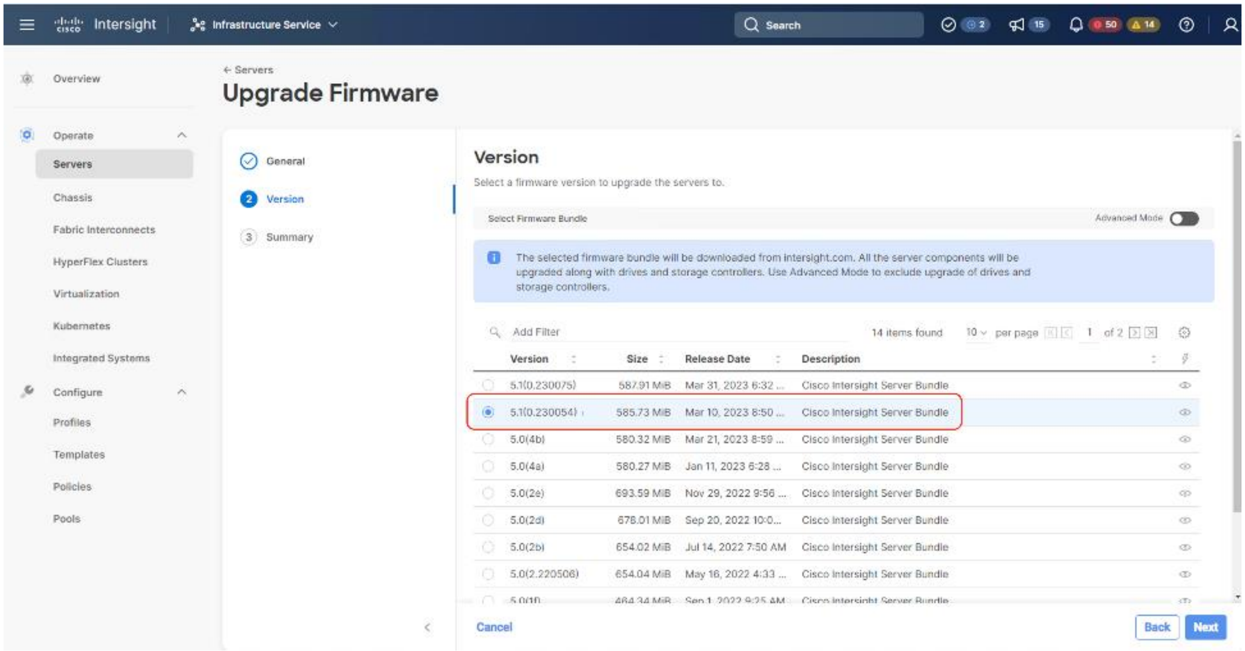
Ensure selected servers meet requirements for firmware upgrade.

Confirm Servers Selection 4 Selected

☑	Name	User Label	Model	Firmware Version	UCS Domain
☑	AA08-XSeries-2-4		UCSX-210C-M6	5.0(1c)	AA08-XSeries
☑	AA08-XSeries-2-3		UCSX-210C-M6	5.0(2b)	AA08-XSeries
☑	AA08-XSeries-2-1		UCSX-210C-M6	5.0(2b)	AA08-XSeries
☑	AA08-XSeries-2-2		UCSX-210C-M6	5.1(0.230054)	AA08-XSeries

Selected 4 of 4

Step 3. Select the recommended Server Firmware version and click Next. At the time of publishing this guide, the suggested firmware was 5.1(0.230054). If the firmware upgrade does not require drive firmware updates, select Advanced Mode, and check the Exclude Drive option.



Upgrade Firmware

Version

Select a firmware version to upgrade the servers to.

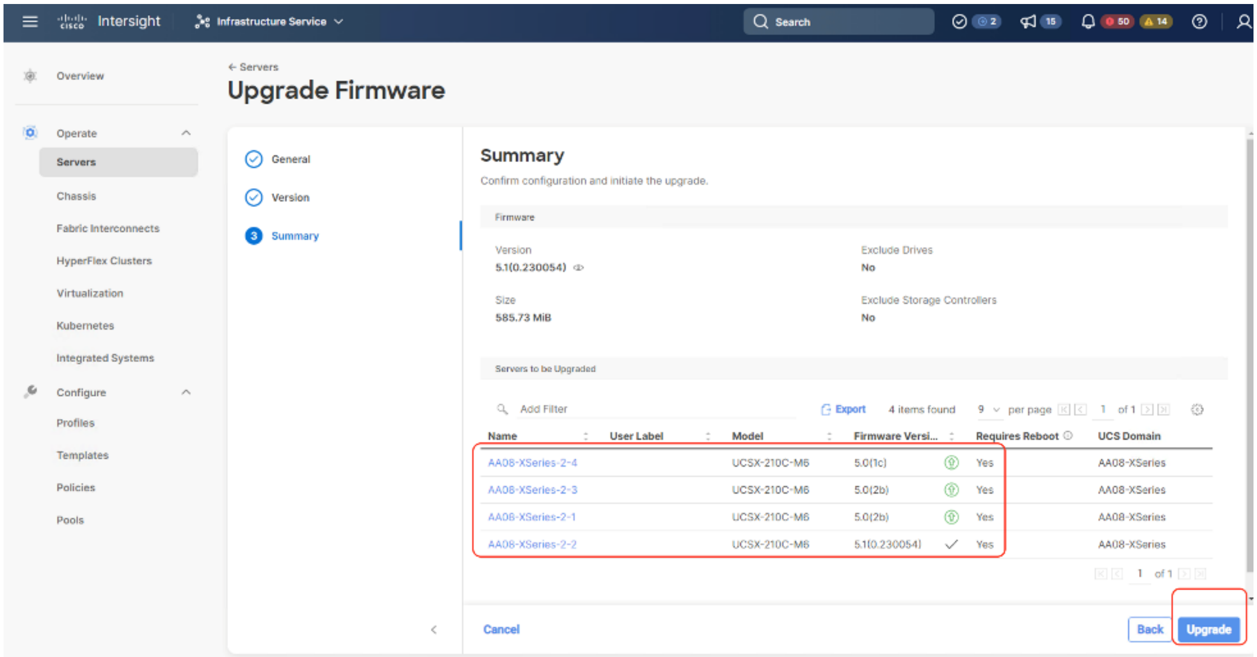
Select Firmware Bundle — Advanced Mode

The selected firmware bundle will be downloaded from intersight.com. All the server components will be upgraded along with drives and storage controllers. Use Advanced Mode to exclude upgrade of drives and storage controllers.

Add Filter — 14 items found — 10 per page — 1 of 2

	Version	Size	Release Date	Description
○	5.1(0.230075)	587.91 MiB	Mar 31, 2023 6:32 ...	Cisco Intersight Server Bundle
●	5.1(0.230054)	585.73 MiB	Mar 10, 2023 8:50 ...	Cisco Intersight Server Bundle
○	5.0(4b)	580.32 MiB	Mar 21, 2023 8:59 ...	Cisco Intersight Server Bundle
○	5.0(4a)	580.27 MiB	Jan 11, 2023 6:28 ...	Cisco Intersight Server Bundle
○	5.0(2e)	693.59 MiB	Nov 29, 2022 9:56 ...	Cisco Intersight Server Bundle
○	5.0(2d)	678.01 MiB	Sep 20, 2022 10:0...	Cisco Intersight Server Bundle
○	5.0(2b)	654.02 MiB	Jul 14, 2022 7:50 AM	Cisco Intersight Server Bundle
○	5.0(2.220506)	654.04 MiB	May 16, 2022 4:33 ...	Cisco Intersight Server Bundle
○	5.0(1f)	464.34 MiB	Sep 1, 2022 9:25 AM	Cisco Intersight Server Bundle

Step 4. Click Upgrade.



Upgrade Firmware

Summary

Confirm configuration and initiate the upgrade.

Firmware

Version: 5.1(0.230054)

Size: 585.73 MiB

Exclude Drives: No

Exclude Storage Controllers: No

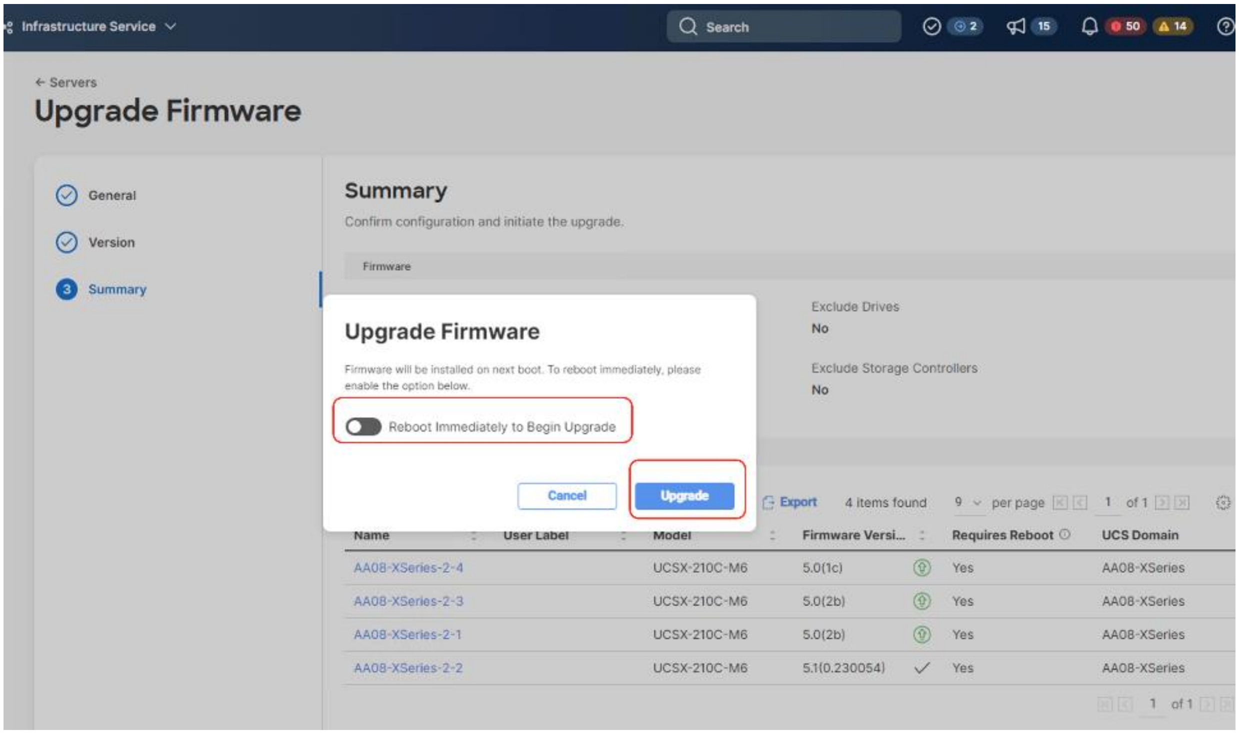
Servers to be Upgraded

Add Filter — Export — 4 items found — 9 per page — 1 of 1

Name	User Label	Model	Firmware Versi...	Requires Reboot	UCS Domain
AA08-XSeries-2-4		UCSX-210C-M6	5.0(1c)	Yes	AA08-XSeries
AA08-XSeries-2-3		UCSX-210C-M6	5.0(2b)	Yes	AA08-XSeries
AA08-XSeries-2-1		UCSX-210C-M6	5.0(2b)	Yes	AA08-XSeries
AA08-XSeries-2-2		UCSX-210C-M6	5.1(0.230054) ✓	Yes	AA08-XSeries

Step 5. Retain the Reboot Immediately to Begin Upgrade option as unselected. When the firmware is mounted and the reboot server message appears, start upgrading the Cohesity Cluster software which will ensure the serial reboots of each node (rolling reboots) and avoid any disruption of operations on Cohesity Data protection services.

Step 6. Click Upgrade.



Upgrade Firmware

Summary

Confirm configuration and initiate the upgrade.

Firmware

Exclude Drives
No

Exclude Storage Controllers
No

Upgrade Firmware

Firmware will be installed on next boot. To reboot immediately, please enable the option below.

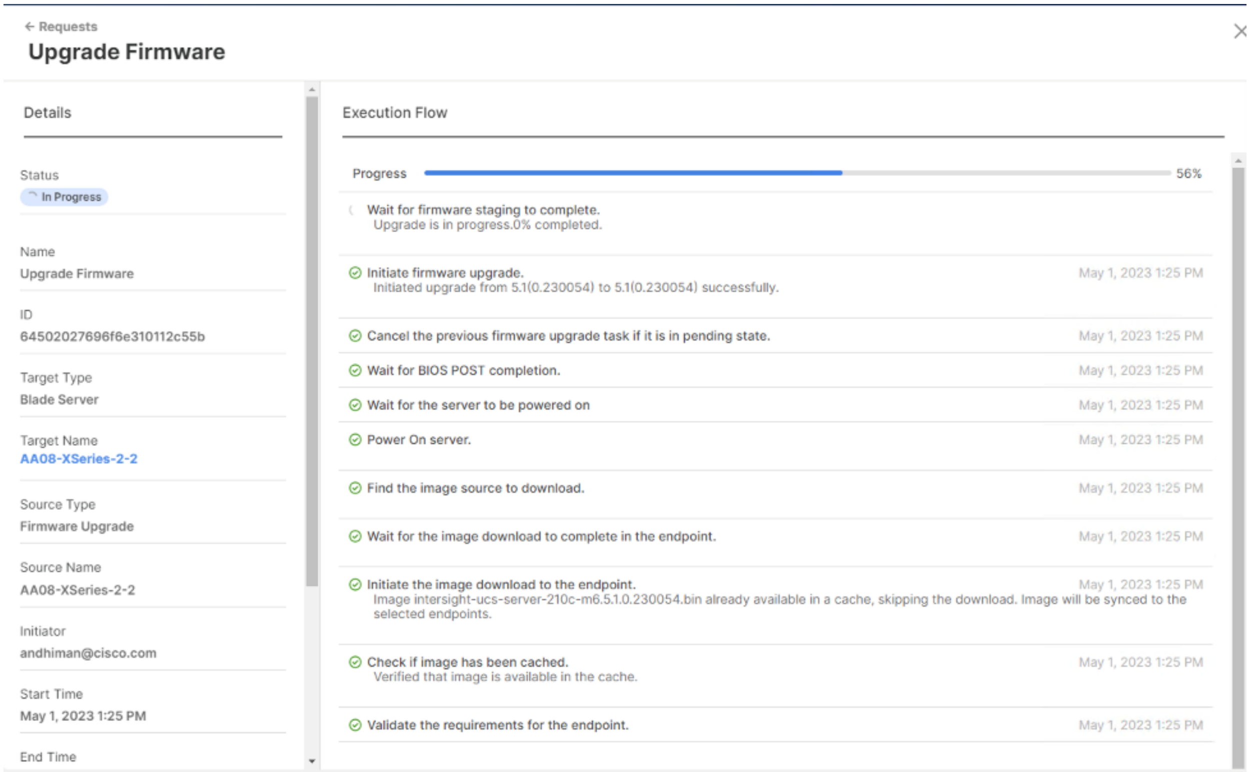
○ Reboot Immediately to Begin Upgrade

4 items found 9 per page 1 of 1

Name	User Label	Model	Firmware Versi...		Requires Reboot	UCS Domain
AA08-XSeries-2-4		UCSX-210C-M6	5.0(1c)	⇧	Yes	AA08-XSeries
AA08-XSeries-2-3		UCSX-210C-M6	5.0(2b)	⇧	Yes	AA08-XSeries
AA08-XSeries-2-1		UCSX-210C-M6	5.0(2b)	⇧	Yes	AA08-XSeries
AA08-XSeries-2-2		UCSX-210C-M6	5.1(0.230054)	✓	Yes	AA08-XSeries

1 of 1

The Firmware image is downloaded to the end point and staged to the respective node:



Upgrade Firmware

Details

Status
In Progress

Name
Upgrade Firmware

ID
64502027696f6e310112c55b

Target Type
Blade Server

Target Name
AA08-XSeries-2-2

Source Type
Firmware Upgrade

Source Name
AA08-XSeries-2-2

Initiator
andhiman@cisco.com

Start Time
May 1, 2023 1:25 PM

End Time

Execution Flow

Progress 56%

Wait for firmware staging to complete.
Upgrade is in progress.0% completed.

✓ Initiate firmware upgrade. May 1, 2023 1:25 PM
Initiated upgrade from 5.1(0.230054) to 5.1(0.230054) successfully.

✓ Cancel the previous firmware upgrade task if it is in pending state. May 1, 2023 1:25 PM

✓ Wait for BIOS POST completion. May 1, 2023 1:25 PM

✓ Wait for the server to be powered on May 1, 2023 1:25 PM

✓ Power On server. May 1, 2023 1:25 PM

✓ Find the image source to download. May 1, 2023 1:25 PM

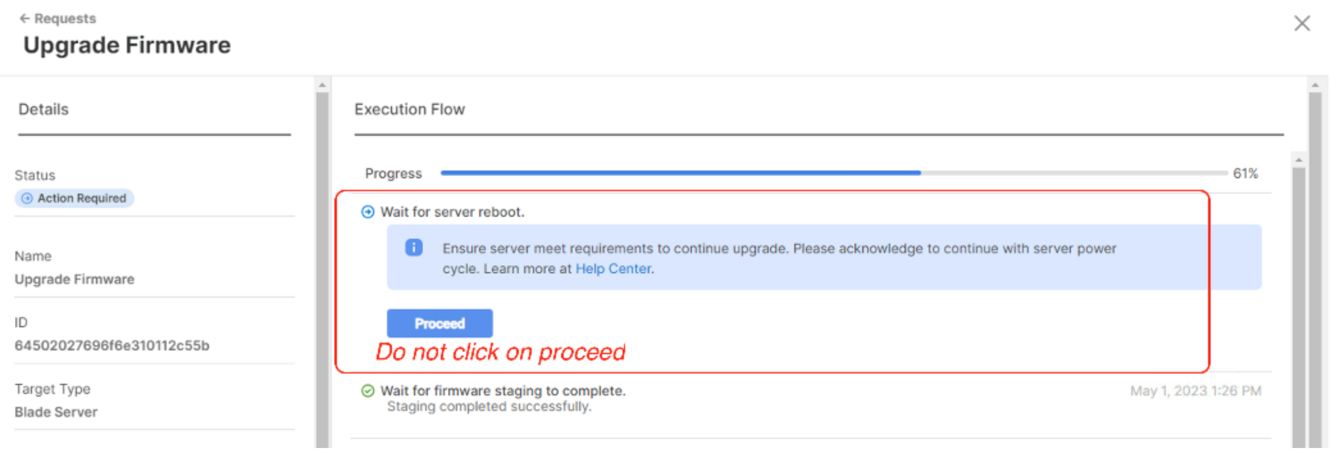
✓ Wait for the image download to complete in the endpoint. May 1, 2023 1:25 PM

✓ Initiate the image download to the endpoint. May 1, 2023 1:25 PM
Image intersight-ucs-server-210c-m6.5.1.0.230054.bin already available in a cache, skipping the download. Image will be synced to the selected endpoints.

✓ Check if image has been cached. May 1, 2023 1:25 PM
Verified that image is available in the cache.

✓ Validate the requirements for the endpoint. May 1, 2023 1:25 PM

Step 7. When the Server Power cycle option is displayed, close the message, and do not click Proceed. Before proceeding to the next step, make sure all nodes are at this stage.



← Requests

Upgrade Firmware

Details

Status

Action Required

Name

Upgrade Firmware

ID

64502027696f6e310112c55b

Target Type

Blade Server

Execution Flow

Progress 61%

Wait for server reboot.

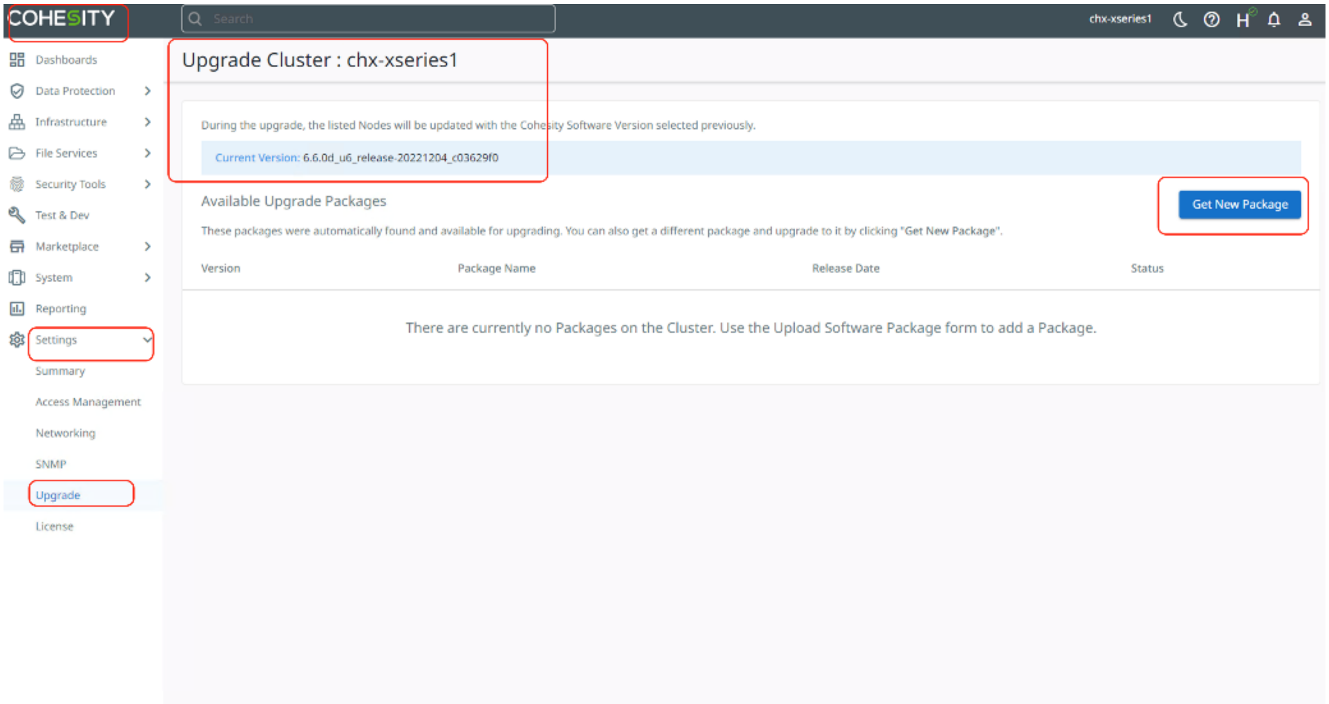
Ensure server meet requirements to continue upgrade. Please acknowledge to continue with server power cycle. Learn more at Help Center.

Do not click on proceed

Wait for firmware staging to complete. May 1, 2023 1:26 PM

Staging completed successfully.

Step 8. Login to the Cohesity Data Cloud Cluster dashboard and click Settings. Click Upgrade.



Upgrade Cluster : chx-xseries1

During the upgrade, the listed Nodes will be updated with the Cohesity Software Version selected previously.

Current Version: 6.6.0d_u6_release-20221204_c03629f0

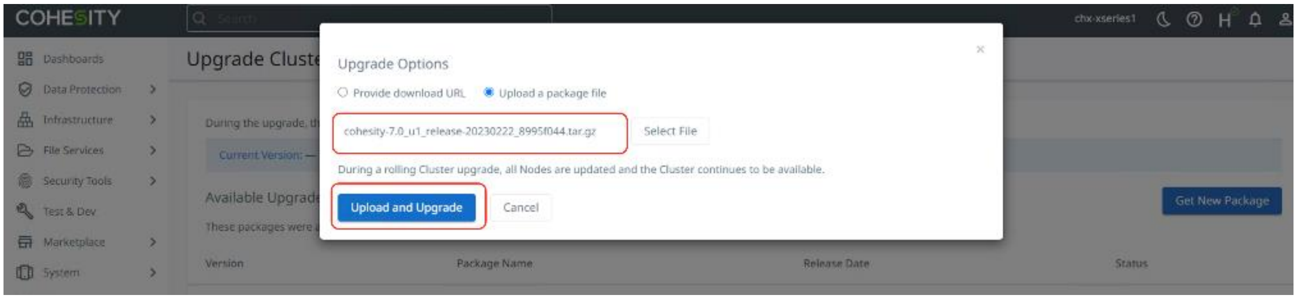
Available Upgrade Packages

These packages were automatically found and available for upgrading. You can also get a different package and upgrade to it by clicking "Get New Package".

Version	Package Name	Release Date	Status

There are currently no Packages on the Cluster. Use the Upload Software Package form to add a Package.

Step 9. Click Get New Package and upload the recommended Cohesity Data Cloud upgrade package. Click Upload and Upgrade.



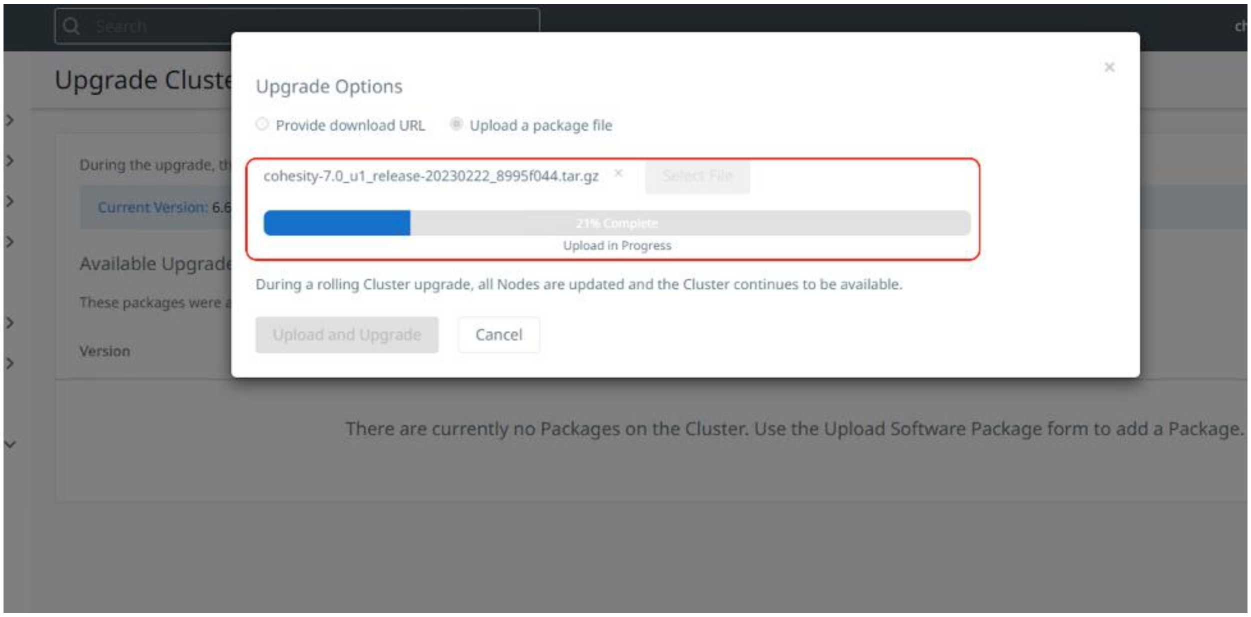
Upgrade Options

○ Provide download URL ● Upload a package file

cohesity-7.0_u1_release-20230222_8995f044.tar.gz

During a rolling Cluster upgrade, all Nodes are updated and the Cluster continues to be available.

Step 10. This step of the upgrade process will take some time, about 20-30 minutes per node when the Cisco UCS X210c nodes are rebooted and upgraded serially. It will take an additional 2-hours for the four node Cohesity Cluster rolling upgrade of the server firmware.



○ Provide download URL ● Upload a package file

cohesity-7.0_u1_release-20230222_8995f044.tar.gz ×

21% Complete

Upload in Progress

During a rolling Cluster upgrade, all Nodes are updated and the Cluster continues to be available.

During the upgrade, th

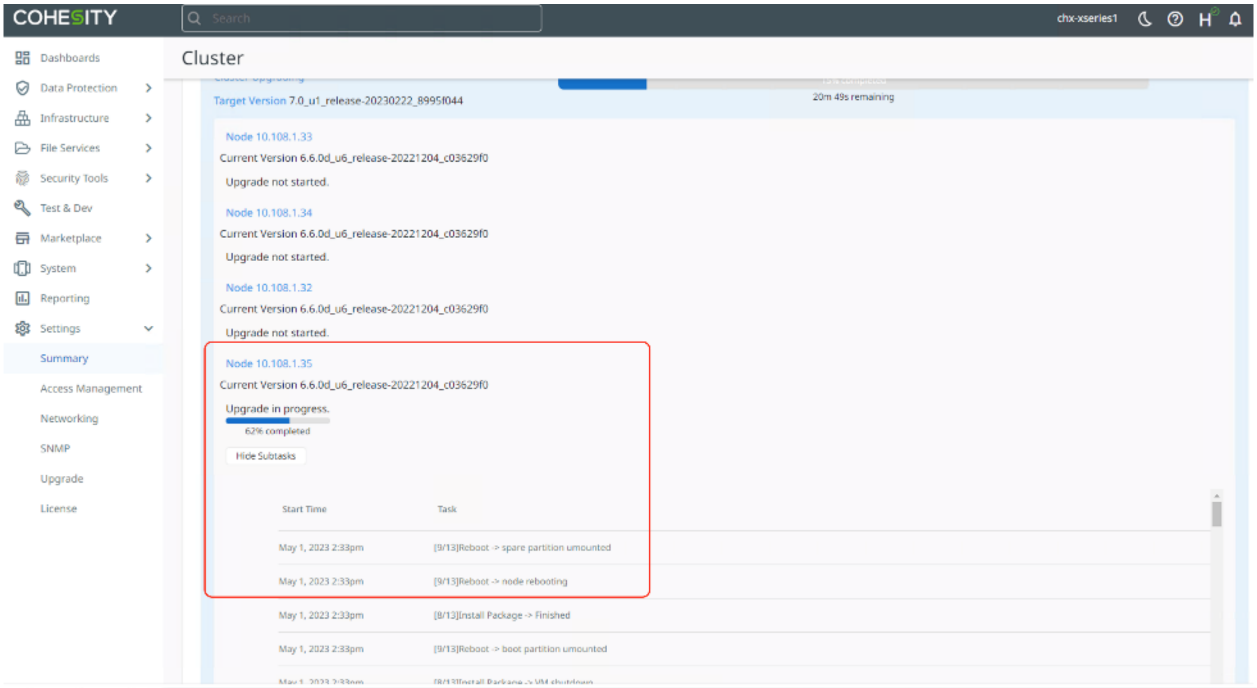
Current Version: 6.6

Available Upgrade

These packages were a

There are currently no Packages on the Cluster. Use the Upload Software Package form to add a Package.

Rebooting the node initiated through the Cohesity Data Cloud upgrade and the Cisco UCS X210c firmware update after its reboot is shown below:



Target Version 7.0_u1_release-20230222_8995f044

20m 49s remaining

Node 10.108.1.33
Current Version 6.6.0d_u6_release-20221204_c03629f0
Upgrade not started.

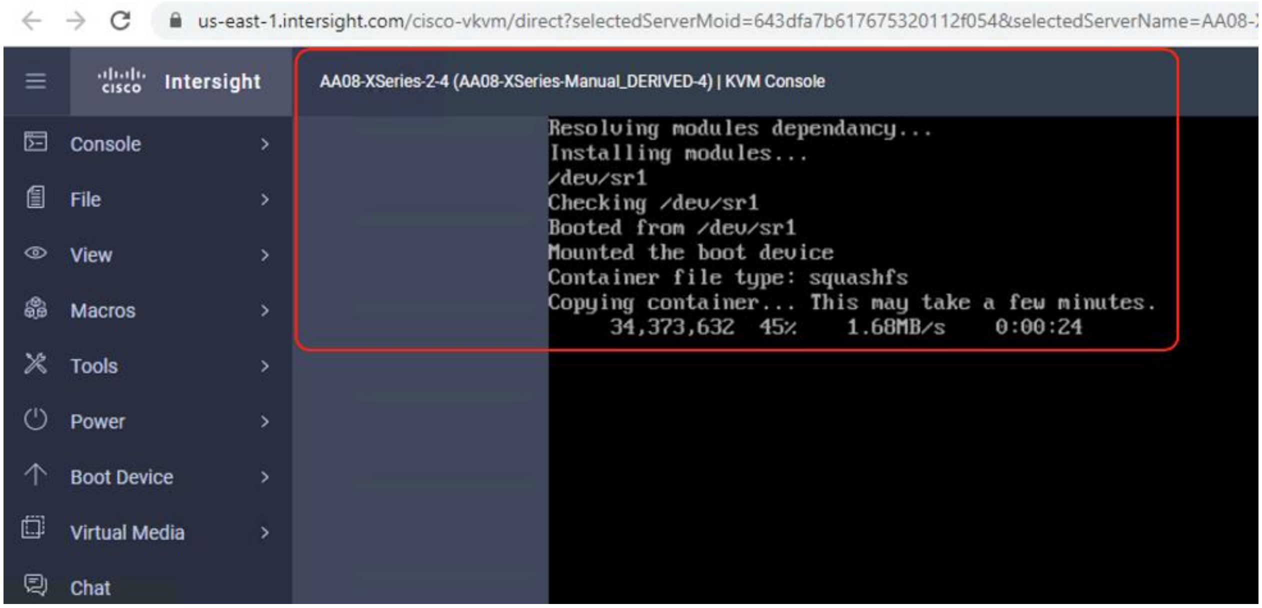
Node 10.108.1.34
Current Version 6.6.0d_u6_release-20221204_c03629f0
Upgrade not started.

Node 10.108.1.32
Current Version 6.6.0d_u6_release-20221204_c03629f0
Upgrade not started.

Node 10.108.1.35
Current Version 6.6.0d_u6_release-20221204_c03629f0
Upgrade in progress.
62% completed

Hide Subtasks

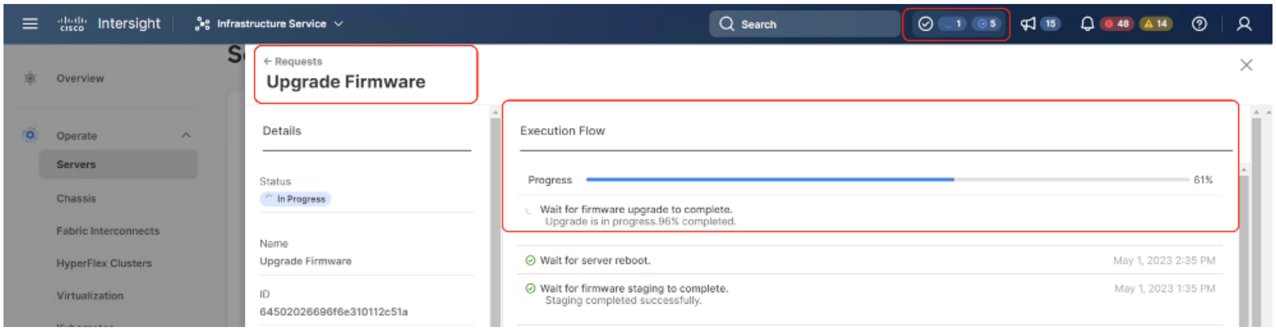
Start Time	Task
May 1, 2023 2:33pm	[9/13]Reboot -> spare partition umounted
May 1, 2023 2:33pm	[9/13]Reboot -> node rebooting
May 1, 2023 2:33pm	[8/13]Install Package -> Finished
May 1, 2023 2:33pm	[9/13]Reboot -> boot partition umounted
May 1, 2023 2:33pm	[8/13]Install Package -> VM shutdown


us-east-1.intersight.com/cisco-vkvm/direct?selectedServerMoid=643dfa7b617675320112f054&selectedServerName=AA08-

AA08-XSeries-2-4 (AA08-XSeries-Manual_DERIVED-4) | KVM Console

```
Resolving modules dependancy...
Installing modules...
/dev/sr1
Checking /dev/sr1
Booted from /dev/sr1
Mounted the boot device
Container file type: squashfs
Copying container... This may take a few minutes.
     34,373,632  45%    1.68MB/s    0:00:24
```

Step 11. You can also monitor the firmware upgrade status of the node with Cisco Intersight in Progress Request.



← Requests
Upgrade Firmware

Details

Status
In Progress

Name
Upgrade Firmware

ID
64502026696f6e310112c51a

Execution Flow

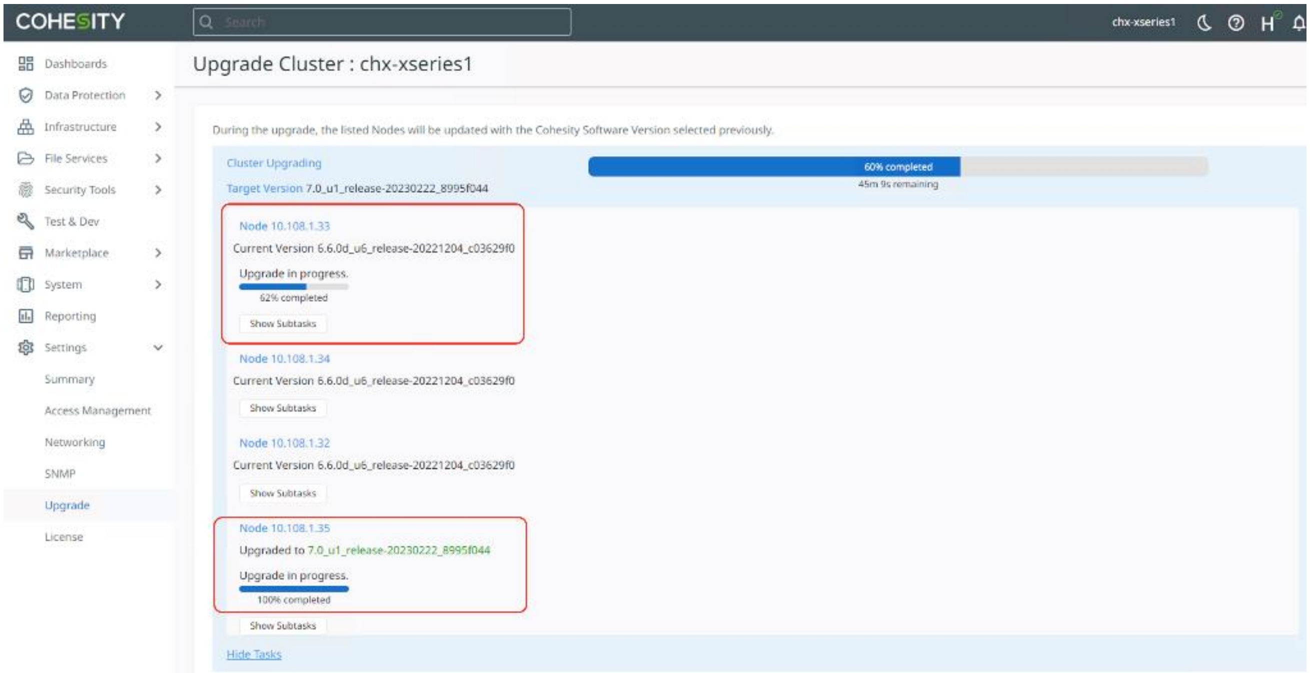
Progress 61%

Wait for firmware upgrade to complete.
Upgrade is in progress.96% completed.

Wait for server reboot. May 1, 2023 2:35 PM

Wait for firmware staging to complete. May 1, 2023 1:35 PM
Staging completed successfully.

The details of the firmware and software upgrade completing the first Cisco UCS X210C node and the beginning of the upgrade procedure for the second Cisco UCS X210C node initiated through the Cohesity Data Cloud is shown below:



Upgrade Cluster : chx-xseries1

During the upgrade, the listed Nodes will be updated with the Cohesity Software Version selected previously.

Cluster Upgrading — 60% completed — 45m 9s remaining

Target Version 7.0_u1_release-20230222_8995f044

Node 10.108.1.33
Current Version 6.6.0d_u6_release-20221204_c03629f0
Upgrade in progress.
62% completed
Show Subtasks

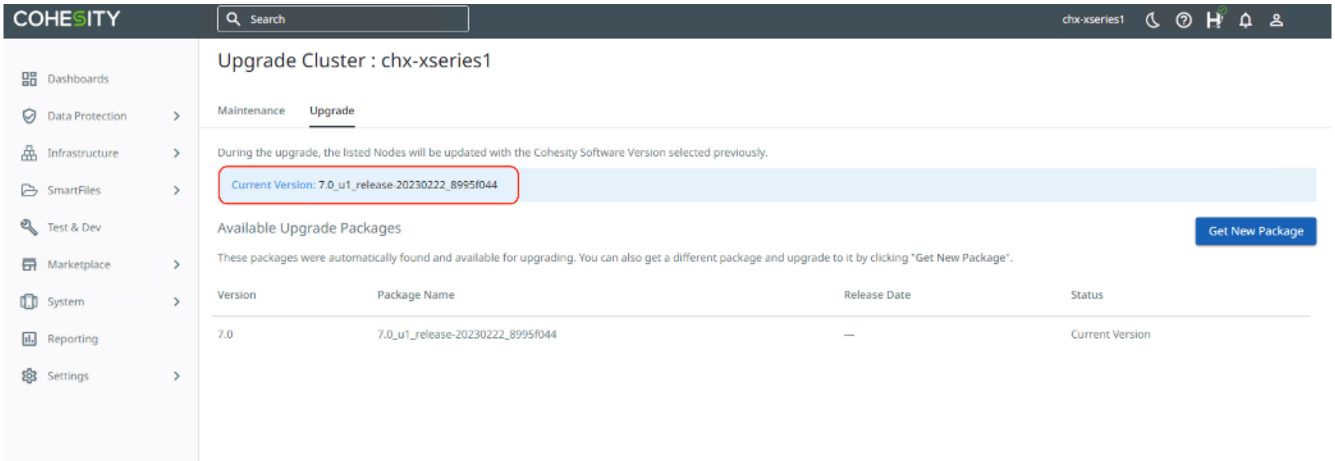
Node 10.108.1.34
Current Version 6.6.0d_u6_release-20221204_c03629f0
Show Subtasks

Node 10.108.1.32
Current Version 6.6.0d_u6_release-20221204_c03629f0
Show Subtasks

Node 10.108.1.35
Upgraded to 7.0_u1_release-20230222_8995f044
Upgrade in progress.
100% completed
Show Subtasks

Hide Tasks

Step 12. When the upgrade completes, confirm the upgraded versions for the Cohesity Data Cloud and Cisco UCS X210C node firmware.



Upgrade Cluster : chx-xseries1

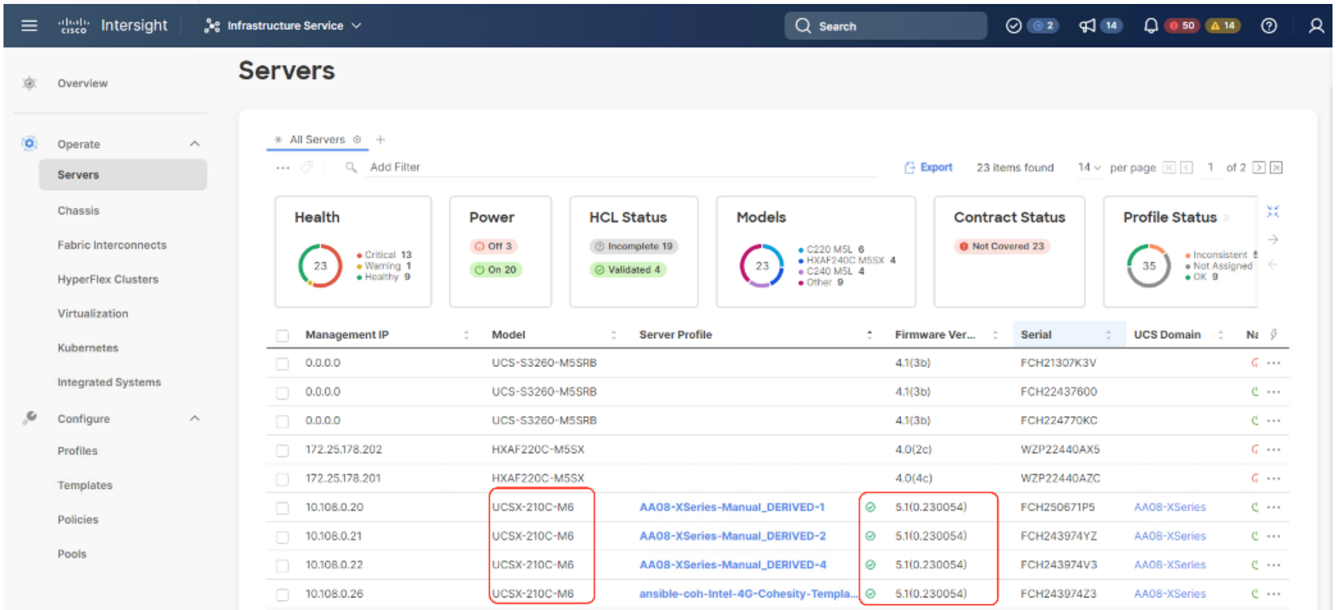
During the upgrade, the listed Nodes will be updated with the Cohesity Software Version selected previously.

Current Version: 7.0_u1_release-20230222_8995f044

Available Upgrade Packages

These packages were automatically found and available for upgrading. You can also get a different package and upgrade to it by clicking "Get New Package".

Version	Package Name	Release Date	Status
7.0	7.0_u1_release-20230222_8995f044	—	Current Version



Servers

Management IP	Model	Server Profile	Firmware Ver...	Serial	UCS Domain	Na
0.0.0.0	UCS-S3260-M5SRB		4.1(3b)	FCH21307K3V		
0.0.0.0	UCS-S3260-M5SRB		4.1(3b)	FCH22437600		
0.0.0.0	UCS-S3260-M5SRB		4.1(3b)	FCH224770KC		
172.25.178.202	HXAF220C-M5SX		4.0(2c)	WZP22440AX5		
172.25.178.201	HXAF220C-M5SX		4.0(4c)	WZP22440AZC		
10.108.0.20	UCSX-210C-M6	AA08-XSeries-Manual_DERIVED-1	✓ 5.1(0.230054)	FCH250671P5	AA08-XSeries	
10.108.0.21	UCSX-210C-M6	AA08-XSeries-Manual_DERIVED-2	✓ 5.1(0.230054)	FCH243974YZ	AA08-XSeries	
10.108.0.22	UCSX-210C-M6	AA08-XSeries-Manual_DERIVED-4	✓ 5.1(0.230054)	FCH243974V3	AA08-XSeries	
10.108.0.26	UCSX-210C-M6	ansible-coh-Intel-4G-Cohesity-Templa...	✓ 5.1(0.230054)	FCH243974Z3	AA08-XSeries	

Upgrade Node Firmware (independent of the Cohesity Cluster)

Procedure 1. Upgrade Cisco UCS X210C Node Firmware independent of Cohesity Data Cloud Upgrades

Note: This procedure expands on the procedure to upgrade the firmware of only Cisco UCS X210c Cohesity certified nodes. The Cohesity Data Cloud software upgrade is not part of this procedure.

Note: Before starting the upgrade procedure, make sure the recommended Cisco UCS X210c firmware is compatible with the Cohesity Data Cloud version.

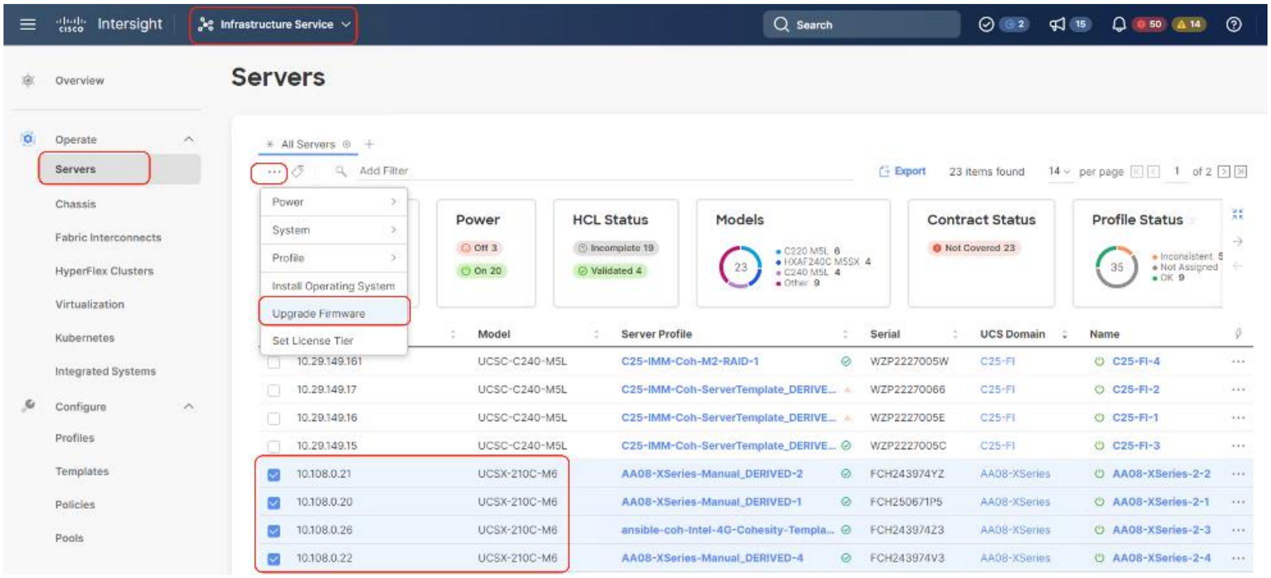
Note: Since the Cisco UCS X210c node firmware upgrade requires a reboot. please initiate support of Cohesity to shut down the Cohesity Data Cloud cluster during the maintenance window.

This procedure is utilized in three key circumstances.

- Only the Cisco UCS X210C node firmware requires an upgrade.
- You are comfortable with having a maintenance window for the Cohesity Data Cloud cluster downtime.
- Since the Rolling upgrade adds up to 20-30 minutes per node, it could be time consuming for Cohesity Data Cloud cluster with several nodes. In this case, you can initiate a node reboot from Cisco Intersight

and upgrade the Cisco UCS X210C node firmware in parallel to all nodes. This requires downtime for Cohesity Data Cloud and can only be initiated in a maintenance window.

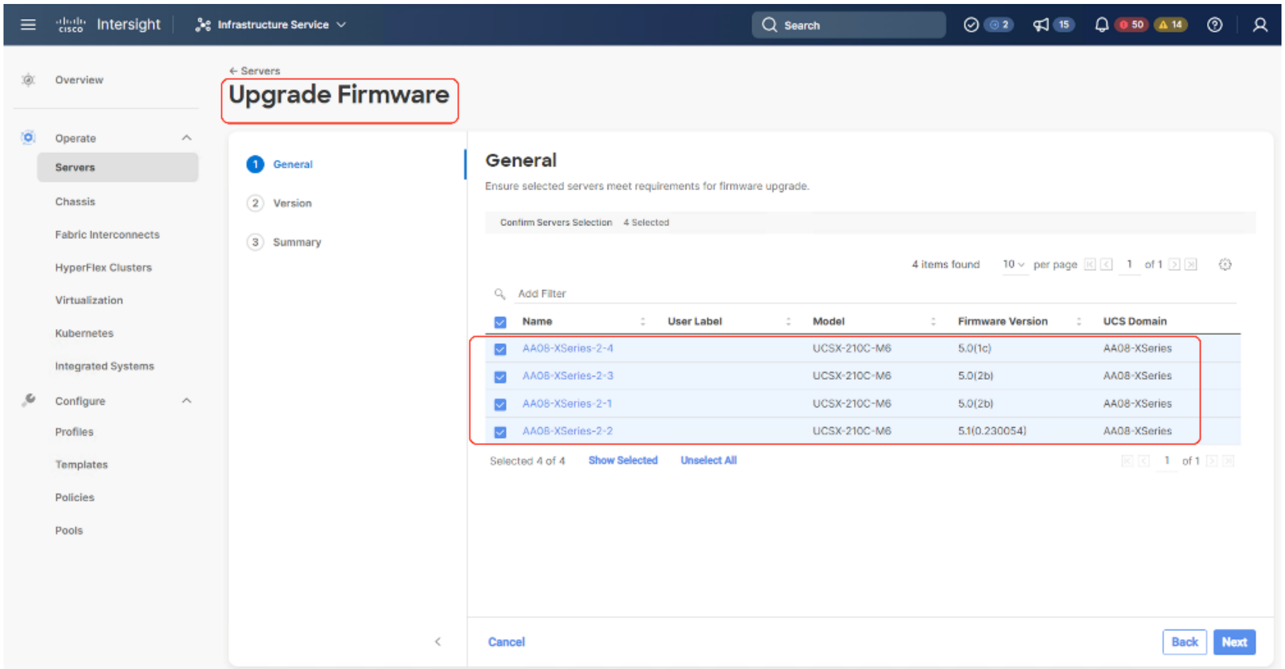
Step 1. Login to https://intersight.com, click Infrastructure Service, then click Servers. Select the Cisco UCS X210C nodes that are part of the Cohesity Data Cloud cluster. Click the … icon and select Upgrade Firmware.



23 items found 14 per page 1 of 2

		Model	Server Profile	Serial	UCS Domain	Name
□	10.29.149.161	UCSC-C240-M5L	C25-IMM-Coh-M2-RAID-1	WZP2227005W	C25-FI	C25-FI-4
□	10.29.149.17	UCSC-C240-M5L	C25-IMM-Coh-ServerTemplate_DERIVE…	WZP22270066	C25-FI	C25-FI-2
□	10.29.149.16	UCSC-C240-M5L	C25-IMM-Coh-ServerTemplate_DERIVE…	WZP2227005E	C25-FI	C25-FI-1
□	10.29.149.15	UCSC-C240-M5L	C25-IMM-Coh-ServerTemplate_DERIVE…	WZP2227005C	C25-FI	C25-FI-3
☑	10.108.0.21	UCSX-210C-M6	AA08-XSeries-Manual_DERIVED-2	FCH243974YZ	AA08-XSeries	AA08-XSeries-2-2
☑	10.108.0.20	UCSX-210C-M6	AA08-XSeries-Manual_DERIVED-1	FCH250671P5	AA08-XSeries	AA08-XSeries-2-1
☑	10.108.0.26	UCSX-210C-M6	ansible-coh-Intel-4G-Cohesity-Templa…	FCH243974Z3	AA08-XSeries	AA08-XSeries-2-3
☑	10.108.0.22	UCSX-210C-M6	AA08-XSeries-Manual_DERIVED-4	FCH243974V3	AA08-XSeries	AA08-XSeries-2-4

Step 2. Make sure all Cisco UCS X210C nodes are selected for upgrade. Click Next.



General

Ensure selected servers meet requirements for firmware upgrade.

Confirm Servers Selection 4 Selected

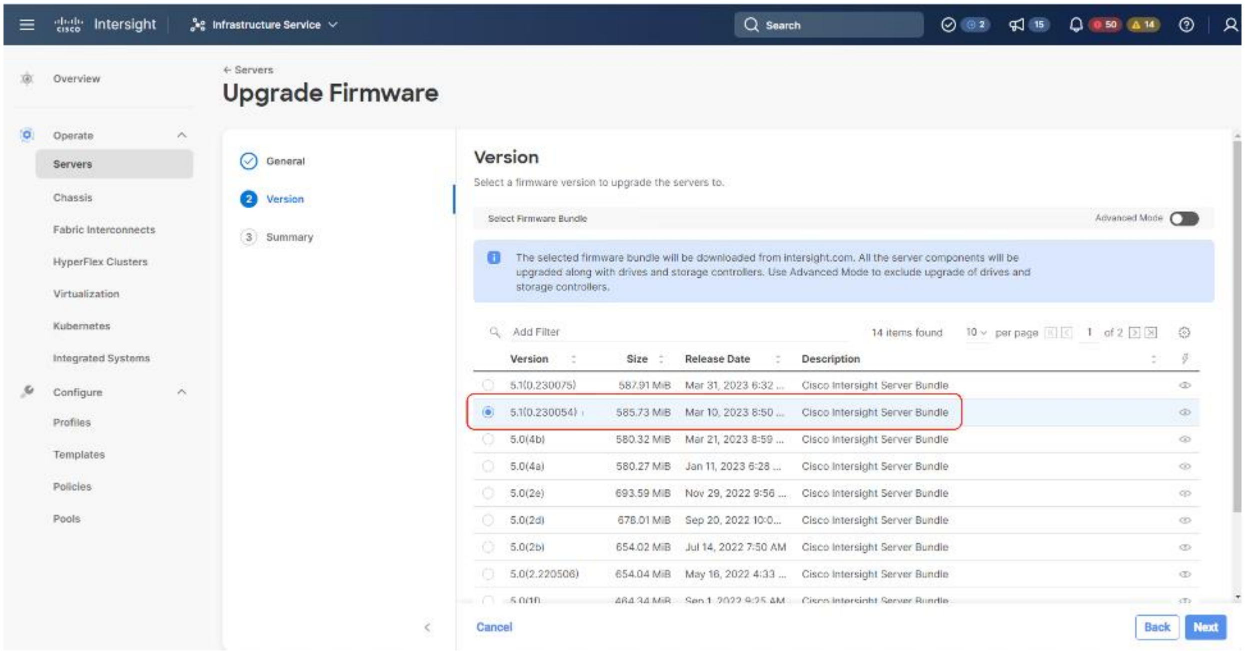
4 items found 10 per page 1 of 1

Add Filter

☑	Name	User Label	Model	Firmware Version	UCS Domain
☑	AA08-XSeries-2-4		UCSX-210C-M6	5.0(1c)	AA08-XSeries
☑	AA08-XSeries-2-3		UCSX-210C-M6	5.0(2b)	AA08-XSeries
☑	AA08-XSeries-2-1		UCSX-210C-M6	5.0(2b)	AA08-XSeries
☑	AA08-XSeries-2-2		UCSX-210C-M6	5.1(0.230054)	AA08-XSeries

Selected 4 of 4 Show Selected Unselect All 1 of 1

Step 3. Select the recommended Server Firmware version and click Next. At the time of publishing this guide, the suggested firmware was 5.1(0.230054). If the firmware upgrade does not require drive firmware updates, select Advanced Mode, and check the 'Ede Drive option.



← Servers

Upgrade Firmware

Version

Select a firmware version to upgrade the servers to.

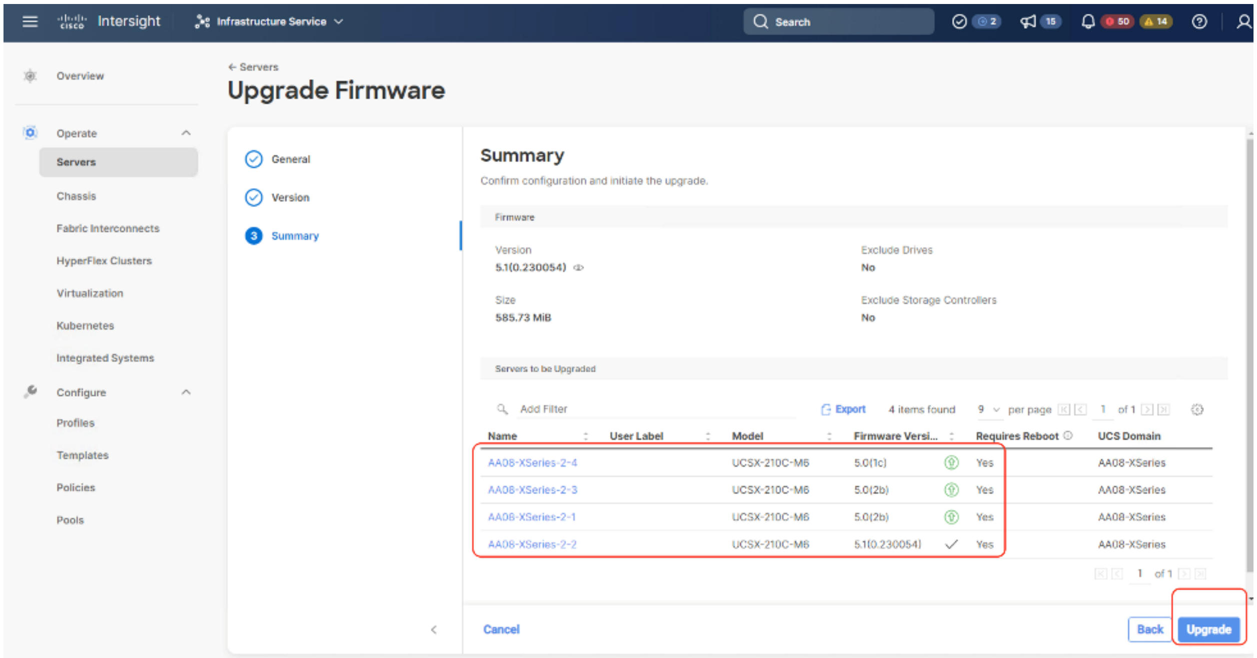
Select Firmware Bundle — Advanced Mode

The selected firmware bundle will be downloaded from intersight.com. All the server components will be upgraded along with drives and storage controllers. Use Advanced Mode to exclude upgrade of drives and storage controllers.

Add Filter — 14 items found — 10 per page — 1 of 2

	Version	Size	Release Date	Description
○	5.1(0.230075)	587.91 MiB	Mar 31, 2023 6:32 ...	Cisco Intersight Server Bundle
●	5.1(0.230054)	585.73 MiB	Mar 10, 2023 8:50 ...	Cisco Intersight Server Bundle
○	5.0(4b)	580.32 MiB	Mar 21, 2023 8:59 ...	Cisco Intersight Server Bundle
○	5.0(4a)	580.27 MiB	Jan 11, 2023 6:28 ...	Cisco Intersight Server Bundle
○	5.0(2e)	693.59 MiB	Nov 29, 2022 9:56 ...	Cisco Intersight Server Bundle
○	5.0(2d)	678.01 MiB	Sep 20, 2022 10:0...	Cisco Intersight Server Bundle
○	5.0(2b)	654.02 MiB	Jul 14, 2022 7:50 AM	Cisco Intersight Server Bundle
○	5.0(2.220506)	654.04 MiB	May 16, 2022 4:33 ...	Cisco Intersight Server Bundle
○	5.0(1f)	464.34 MiB	Sep 1, 2022 9:25 AM	Cisco Intersight Server Bundle

Step 4. Click Upgrade.



← Servers

Upgrade Firmware

Summary

Confirm configuration and initiate the upgrade.

Firmware

Version: 5.1(0.230054)

Size: 585.73 MiB

Exclude Drives: No

Exclude Storage Controllers: No

Servers to be Upgraded

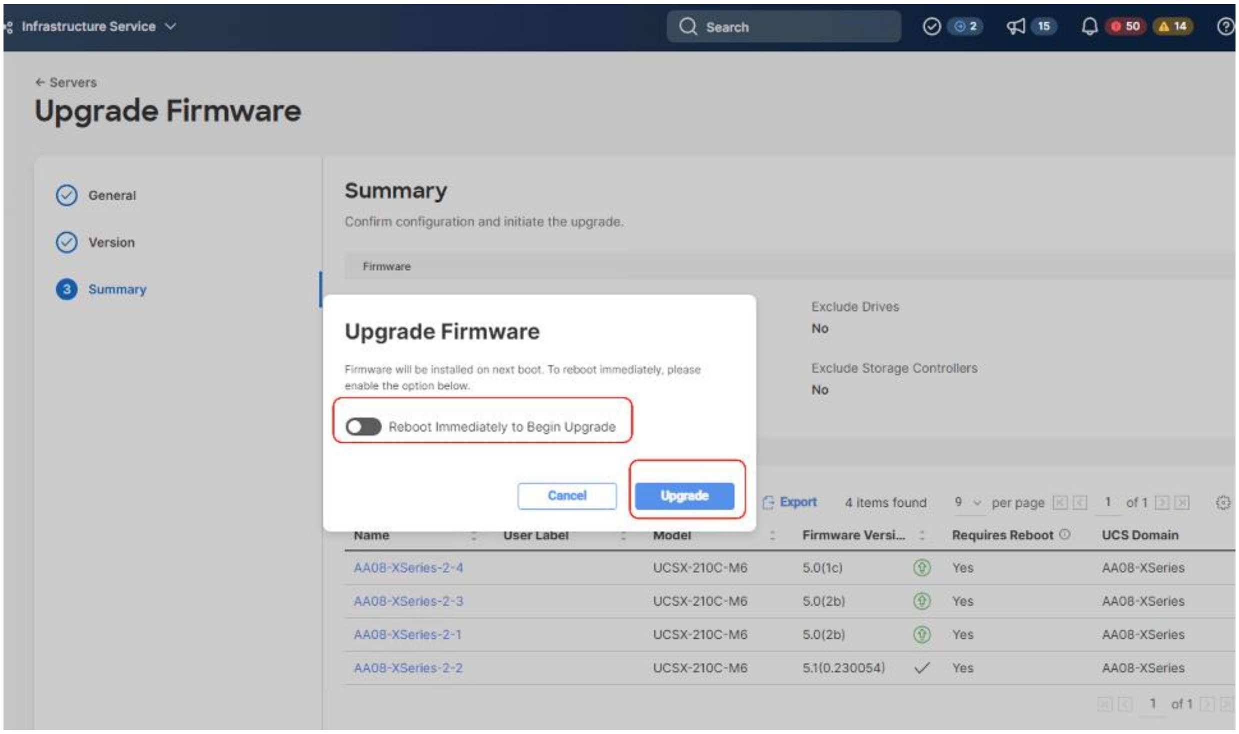
Add Filter — Export — 4 items found — 9 per page — 1 of 1

Name	User Label	Model	Firmware Versi...	Requires Reboot	UCS Domain
AA08-XSeries-2-4		UCSX-210C-M6	5.0(1c)	Yes	AA08-XSeries
AA08-XSeries-2-3		UCSX-210C-M6	5.0(2b)	Yes	AA08-XSeries
AA08-XSeries-2-1		UCSX-210C-M6	5.0(2b)	Yes	AA08-XSeries
AA08-XSeries-2-2		UCSX-210C-M6	5.1(0.230054) ✓	Yes	AA08-XSeries

Step 5. Select the Reboot Immediately to Begin Upgrade option. This initiates the firmware upgrade across all Cisco UCS X210c Cohesity certified nodes.

Step 6. When the firmware is mounted and the reboot server message appears, start upgrading the Cohesity Cluster software which ensures the serial reboots of each node (rolling reboots). This avoids any disruption of operations with the Cohesity data protection services.

Step 7. Click Upgrade.



Upgrade Firmware

Summary

Confirm configuration and initiate the upgrade.

Exclude Drives
No

Exclude Storage Controllers
No

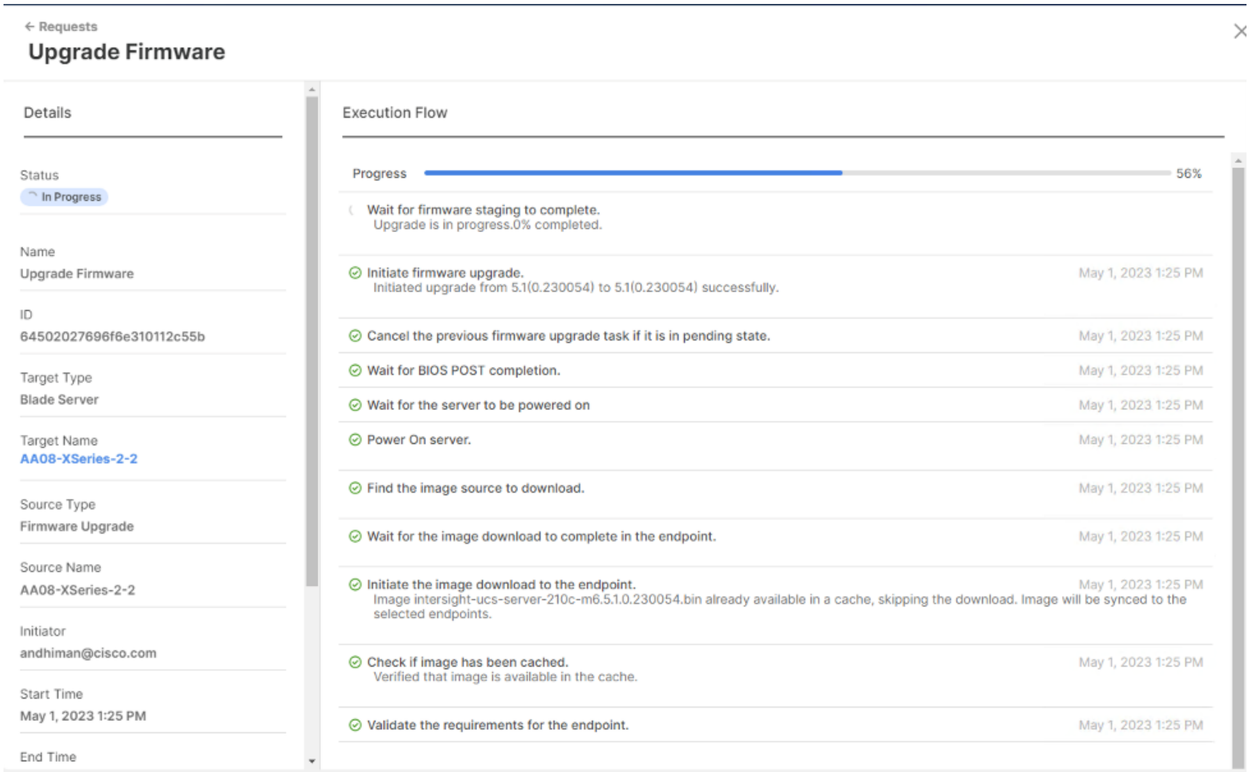
Upgrade Firmware

Firmware will be installed on next boot. To reboot immediately, please enable the option below.

○ Reboot Immediately to Begin Upgrade

Name	User Label	Model	Firmware Versi...		Requires Reboot	UCS Domain
AA08-XSeries-2-4		UCSX-210C-M6	5.0(1c)	ⓘ	Yes	AA08-XSeries
AA08-XSeries-2-3		UCSX-210C-M6	5.0(2b)	ⓘ	Yes	AA08-XSeries
AA08-XSeries-2-1		UCSX-210C-M6	5.0(2b)	ⓘ	Yes	AA08-XSeries
AA08-XSeries-2-2		UCSX-210C-M6	5.1(0.230054)	✓	Yes	AA08-XSeries

The Firmware image is downloaded to the end point and staged to the respective node:



Upgrade Firmware

Details

Status
In Progress

Name
Upgrade Firmware

ID
64502027696f6e310112c55b

Target Type
Blade Server

Target Name
AA08-XSeries-2-2

Source Type
Firmware Upgrade

Source Name
AA08-XSeries-2-2

Initiator
andhiman@cisco.com

Start Time
May 1, 2023 1:25 PM

End Time

Execution Flow

Progress 56%

Wait for firmware staging to complete.
Upgrade is in progress.0% completed.

✓ Initiate firmware upgrade. May 1, 2023 1:25 PM
Initiated upgrade from 5.1(0.230054) to 5.1(0.230054) successfully.

✓ Cancel the previous firmware upgrade task if it is in pending state. May 1, 2023 1:25 PM

✓ Wait for BIOS POST completion. May 1, 2023 1:25 PM

✓ Wait for the server to be powered on May 1, 2023 1:25 PM

✓ Power On server. May 1, 2023 1:25 PM

✓ Find the image source to download. May 1, 2023 1:25 PM

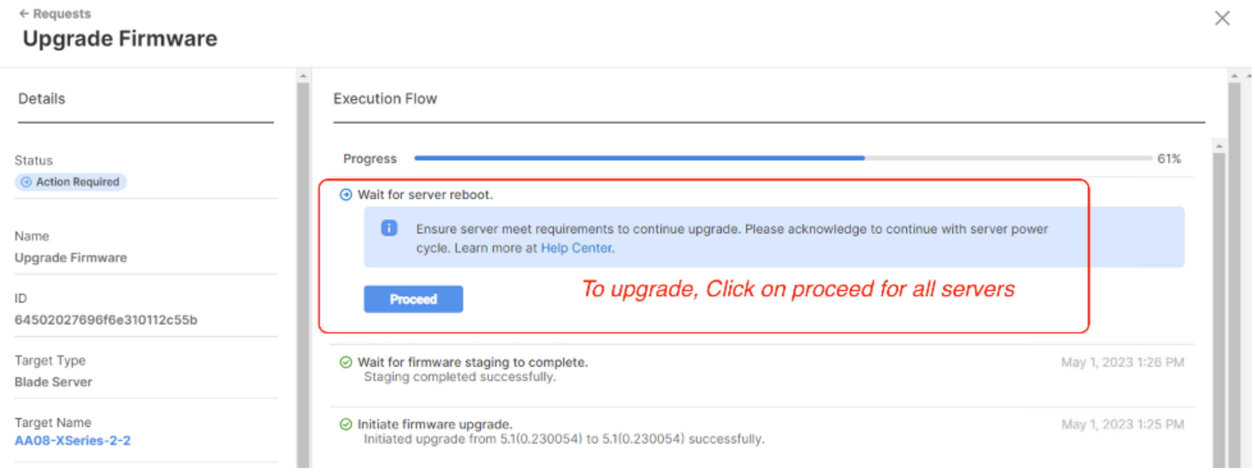
✓ Wait for the image download to complete in the endpoint. May 1, 2023 1:25 PM

✓ Initiate the image download to the endpoint. May 1, 2023 1:25 PM
Image intersight-ucs-server-210c-m6.5.1.0.230054.bin already available in a cache, skipping the download. Image will be synced to the selected endpoints.

✓ Check if image has been cached. May 1, 2023 1:25 PM
Verified that image is available in the cache.

✓ Validate the requirements for the endpoint. May 1, 2023 1:25 PM

Step 8. When the Server Power cycle option is displayed, close the message, and click Proceed.



← Requests

Upgrade Firmware

Details

Status
Action Required

Name
Upgrade Firmware

ID
64502027696f6e310112c55b

Target Type
Blade Server

Target Name
AA08-XSeries-2-2

Execution Flow

Progress 61%

Wait for server reboot.

Ensure server meet requirements to continue upgrade. Please acknowledge to continue with server power cycle. Learn more at Help Center.

To upgrade, Click on proceed for all servers

Wait for firmware staging to complete. May 1, 2023 1:26 PM
Staging completed successfully.

Initiate firmware upgrade. May 1, 2023 1:25 PM
Initiated upgrade from 5.1(0.230054) to 5.1(0.230054) successfully.

Step 9. Confirm the firmware upgrade across all Cisco UCS X210c nodes is complete.

Step 10. When the firmware across all Cisco UCS X210c nodes are upgraded, restart the Cohesity Data Cloud Cluster.

Cohesity Certified Cisco UCS Nodes

This solution utilizes 4x Cisco UCS X210c All NVMe nodes configured on the Cisco UCS X-Series Modular System. Along with this configuration, Cisco and Cohesity have certified solutions with different capacity points available on Cisco UCS C-Series Rack Servers and Cisco UCS S3260 Storage Servers. This allows you to select your configuration based on key characteristics such as:

- Total Capacity
- Workload configurations such as Data Protection and File Services
- Performance requirements based on Cisco X-Series Modular System with All NVMe Cisco UCS X210c nodes, Cisco UCS C220 M6 All Flash or Cisco UCS C240 M6 LFF HDD (12 and 16 drives) configurations.
- Single node deployments for Remote offices and Branch offices (ROBO)
- Cohesity SmartFiles solution with Cisco UCS S3260 dual node configuration

Table 20 lists the Cohesity-certified nodes on Cisco UCS Platform.

Table 20. Cohesity Certified Cisco UCS Nodes

Solution Name	Cisco UCS Platform	Capacity per Node	Caching SSDs/NVMe per Node
Cohesity X-Series Al NVMe nodes	Cisco UCS X9508 platform	91.8 TB	
Cohesity-C240 M6 LFF-Nodes	Cisco UCS C240 M6 LFF Rack Server with 12 and 16 drive options	48 TB	3.2 TB
		64 TB	3.2 TB
		96 TB	6.4 TB
		128 TB	6.4 TB
		144 TB	6.4 TB
		192 TB	6.4 TB
		216 TB	12.8 TB
		288 TB	12.8 TB
Cohesity-C220 M5-ROBO-8TB-and-16TB-Nodes	Cisco UCS C220 M5 LFF Rack Server	8 TB	1920 GB
		16 TB	1920 GB
Cohesity-C220-All-NVMe-Nodes	Cisco UCS C220 M6 All NVMe Rack Server	76 TB	
Cohesity-S3260-210TB-294TB-420TB-588TB-704TB-768TB-Node	Cisco UCS S3260 M5 Storage Server	210 TB	12.8 TB
		294 TB	12.8 TB
		420 TB	12.8 TB
		588 TB	12.8 TB
		704 TB	12.8 TB

	Cisco UCS S3260 M5 dual node Storage Server (SmartFiles)	768 TB	25.6 TB
		384 TB **	12.8 TB

Note: **384 TB half populated Cisco UCS S3260 chassis can only be purchased in conjunction with a dual node 768TB configuration.

About the Authors

Anil Dhiman, Technical Leader, Technical Marketing Engineering, UCS Solutions, Compute & Networking Group, Cisco Systems, Inc.

Anil Dhiman has nearly 20 years of experience specializing in data center solutions on Cisco UCS servers, and performance engineering of large-scale enterprise applications. Over the past 11 years, Anil has authored several Cisco Validated Designs for enterprise solutions on Cisco data center technologies. Currently, Anil's focus is on Cisco's portfolio of hyperconverged infrastructure and data protection solutions.

Damien Philip, Principal Solutions Architect, Cohesity

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- Francesca Harbert, Director, Cisco Global Alliance, Cohesity
- Eleonor Lee, Senior Product Marketing Manager - Alliances Solutions

Appendix

This appendix is organized into the following sections:

- Appendix A – Bill of Materials
- Appendix B – References Used in Guide
- Appendix C – Known Issues and Workarounds
- Appendix D – Recommended for You
- Appendix E – Glossary
- Appendix F – Acronyms

Appendix A – Bill of Materials

Table 21 provides an example the Bill of Materials used for four (4) node Cohesity DataPlatform cluster deployed on a single Cisco UCS X-Series chassis, along with a pair of Cisco Fabric Interconnects, used in the testing and reference design described in this document.

Table 21. Cohesity FileServices (4 nodes) on Cisco UCS Bill of Materials

Cisco X-Series estimate (4 All NVMe nodes) for Cohesity DataPlatform			
1.0	UCSX-M6-MLB	UCSX M6 Modular Server and Chassis MLB	1
1.1	DC-MGT-SAAS	Cisco Intersight SaaS	1
1.1.1	DC-MGT-SAAS-EST-C	Cisco Intersight SaaS - Essentials	4
1.1.2	SVS-DCM-SUPT-BAS	Basic Support for DCM	4
1.1.3	DC-MGT-IMCS-1S	IMC Supervisor - Advanced - 1 Server License	4
1.1.4	DC-MGT-UCSC-1S	UCS Central Per Server - 1 Server License	4
1.2	UCSX-9508-U	UCS 9508 Chassis Configured	1
1.2.0.1	CON-OSP-UCSX95U8	SNTC-24X7X4OS UCS 9508 Chassis Configured	1
1.2.1	UCSX-CHASSIS-SW	Platform SW (Recommended) latest release for X9500 Chassis	1
1.2.2	UCSX-9508-FSBK	UCS 9508 Chassis Front Node Slot Blank	4
1.2.3	UCSX-9508-CAK	UCS 9508 Chassis Accessory Kit	1
1.2.4	UCSX-9508-RBLK	UCS 9508 Chassis Active Cooling Module (FEM slot)	2
1.2.5	UCSX-9508-ACPEM	UCS 9508 Chassis Rear AC Power Expansion Module	2
1.2.6	UCSX-9508-KEY-AC	UCS 9508 AC PSU Keying Bracket	1
1.2.7	UCSX-210C-M6	UCS 210c M6 Compute Node w/o CPU, Memory, Storage, Mezz	4

Cisco X-Series estimate (4 All NVMe nodes) for Cohesity DataPlatform			
1.2.7.0.1	CON-OSP-UCSX210C	SNTC-24X7X4OS UCS 210c M6 Compute Node w/o CPU, Memory	4
1.2.8	UCSX-X10C-PT4F	UCS X10c Compute Pass Through Controller (Front)	4
1.2.9	UCSX-V4-Q25GML	UCS VIC 14425 4x25G mLOM for X Compute Node	4
1.2.10	UCSX-M2-240GB	Micron 5300 240G SATA M.2	8
1.2.11	UCSX-M2-HWRAID	Cisco Boot optimized M.2 Raid controller	4
1.2.12	UCSX-TPM-002C	TPM 2.0, TCG, FIPS140-2, CC EAL4+ Certified, for M6 servers	4
1.2.13	UCSX-C-SW-LATEST	Platform SW (Recommended) latest release X-Series Compute Node	4
1.2.14	UCSX-C-M6-HS-F	UCS 210c M6 Compute Node Front CPU Heat Sink	4
1.2.15	UCSX-C-M6-HS-R	UCS 210c M6 Compute Node Rear CPU Heat Sink	4
1.2.16	UCS-DIMM-BLK	UCS DIMM Blanks	80
1.2.17	UCSX-CPU-I6326	Intel 6326 2.9GHz/185W 16C/24MB DDR4 3200MHz	8
1.2.18	UCSX-MR-X32G2RW	32GB RDIMM DRx4 3200 (8Gb)	48
1.2.19	UCSX-NVMEM6W15300	15.3TB 2.5in U.2 WD SN840 NVMe Extreme Perf. Value Endurance	24
1.2.20	UCS-SID-INFR-DTP	Data Protection Platform	4
1.2.21	UCS-SID-WKL-DP	Data Protection (Commvault, Veeam only)	4
1.2.22	UCSX-I-9108-25G	UCS 9108-25G IFM for 9508 Chassis	2
1.2.23	UCSX-PSU-2800AC	UCS 9508 Chassis 2800V AC Dual Voltage PSU	6
1.2.24	CAB-C19-CBN	Cabinet Jumper Power Cord, 250 VAC 16A, C20-C19 Connectors	6
1.3	UCSX-FI-6454-U	UCS Fabric Interconnect 6454	2
1.3.0.1	CON-OSP-UCSXUFI6	SNTC-24X7X4OS UCS Fabric Interconnect 6454	2
1.3.1	N10-MGT018	UCS Manager v4.2 and Intersight Managed Mode v4.2	2
1.3.2	UCS-PSU-6332-AC	UCS 6332/ 6454 Power Supply/100-240VAC	4

Cisco X-Series estimate (4 All NVMe nodes) for Cohesity DataPlatform			
1.3.3	CAB-C13-C14-3M-IN	Power Cord Jumper, C13-C14 Connectors, 3 Meter Length, India	4
1.3.4	UCS-ACC-6332	UCS 6332/ 6454 Chassis Accessory Kit	2
1.3.5	UCS-FAN-6332	UCS 6332/ 6454 Fan Module	8

Appendix B – References Used in Guide

Cisco Intersight:
https://www.cisco.com/c/en/us/products/servers-unified-computing/intersight/index.html

Cisco Unified Computing System:
http://www.cisco.com/en/US/products/ps10265/index.html

Cisco UCS Manager:
http://www.cisco.com/en/US/products/ps10281/index.html

Red Hat Ansible:
https://www.ansible.com/resources/get-started

Cisco UCS X-Series

Product Installation Guide: https://www.cisco.com/c/en/us/support/servers-unified-computing/ucs-x-series-modular-system/products-installation-guides-list.html

Cohesity on Cisco

https://www.cisco.com/c/en/us/solutions/global-partners/cohesity.html

https://www.cohesity.com/solutions/technology-partners/cisco/

Appendix C – Known Issues and Workarounds

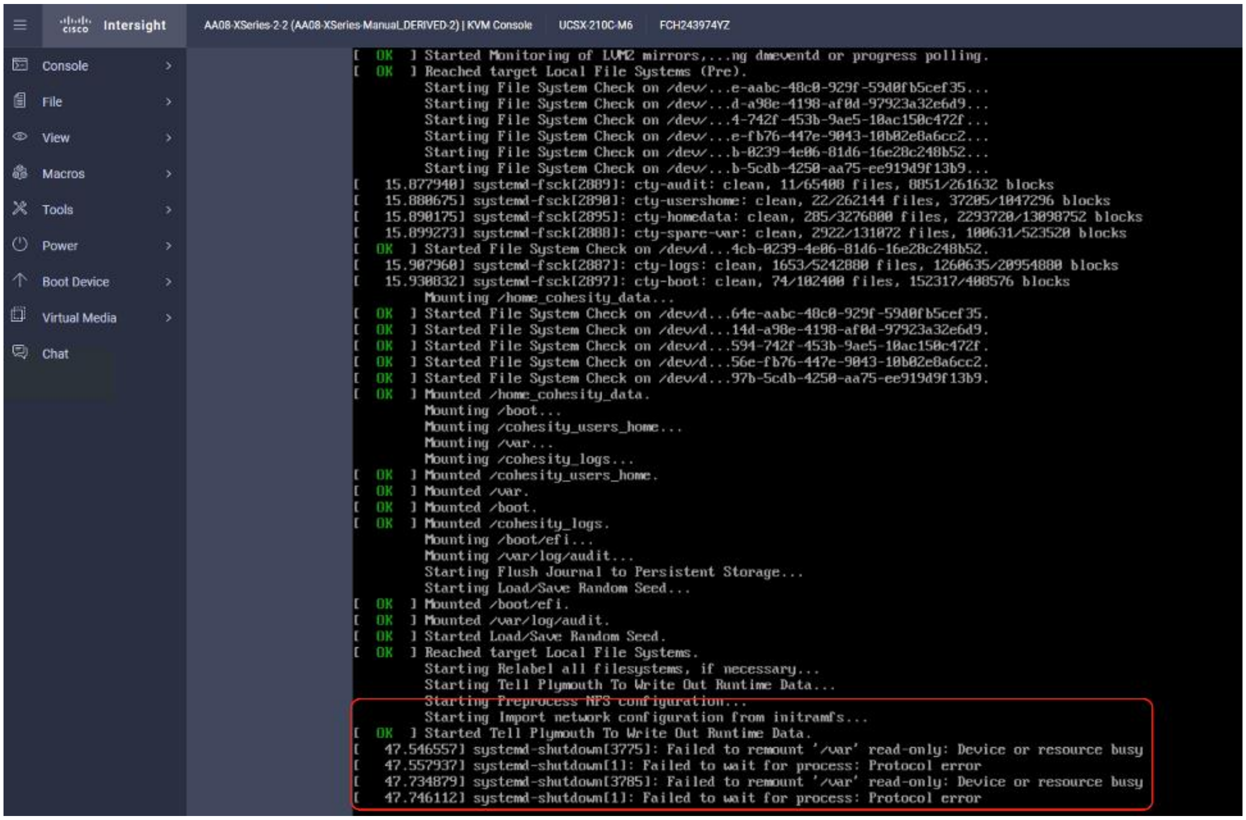
Firmware upgrades

Note: This section expands on the procedure to upgrade the firmware of only Cisco X210C Cohesity certified nodes. Cohesity Data Cloud software upgrade is not part of this procedure.

On reboot of server node during Firmware upgrades, you may see following error on KVM Console. Please reboot the server node either form Intersight or KVM console. The node should recover from this error.

> Failed to remount '/var' read-only: Device or resource busy
>
> Failed to wait for process: Protocol Error

The error, marked in red, is shown below:

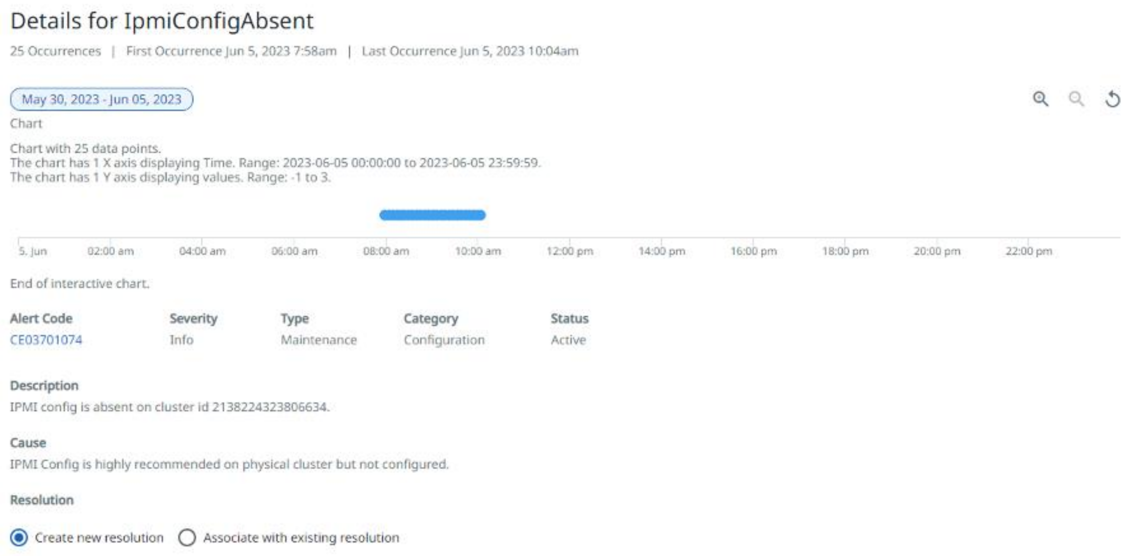


```
[  OK  ] Started Monitoring of LVM2 mirrors,...ng dmeventd or progress polling.
[  OK  ] Reached target Local File Systems (Pre).
         Starting File System Check on /dev/...e-aabc-48c0-929f-59d0fb5cef35...
         Starting File System Check on /dev/...d-a98e-4198-af0d-97923a32e6d9...
         Starting File System Check on /dev/...4-742f-453b-9ae5-10ac150c472f...
         Starting File System Check on /dev/...e-fb76-447e-9043-10b02e8a6cc2...
         Starting File System Check on /dev/...b-0239-4e06-81d6-16e28c248b52...
         Starting File System Check on /dev/...b-5cdb-4250-aa75-ee919d9f13b9...
[   15.877940] systemd-fsck[2889]: cty-audit: clean, 11/65400 files, 8851/261632 blocks
[   15.880675] systemd-fsck[2890]: cty-usershome: clean, 22/262144 files, 37205/1047296 blocks
[   15.890175] systemd-fsck[2895]: cty-homedata: clean, 285/3276800 files, 2293720/13098752 blocks
[   15.899273] systemd-fsck[2888]: cty-spare-var: clean, 2922/131072 files, 100631/523520 blocks
[  OK  ] Started File System Check on /dev/d...4cb-0239-4e06-81d6-16e28c248b52.
[   15.907960] systemd-fsck[2887]: cty-logs: clean, 1653/5242880 files, 1260635/20954880 blocks
[   15.930832] systemd-fsck[2897]: cty-boot: clean, 74/102400 files, 152317/408576 blocks
         Mounting /home_cohesity_data...
[  OK  ] Started File System Check on /dev/d...64e-aabc-48c0-929f-59d0fb5cef35.
[  OK  ] Started File System Check on /dev/d...14d-a98e-4198-af0d-97923a32e6d9.
[  OK  ] Started File System Check on /dev/d...594-742f-453b-9ae5-10ac150c472f.
[  OK  ] Started File System Check on /dev/d...56e-fb76-447e-9043-10b02e8a6cc2.
[  OK  ] Started File System Check on /dev/d...97b-5cdb-4250-aa75-ee919d9f13b9.
[  OK  ] Mounted /home_cohesity_data.
         Mounting /boot...
         Mounting /cohesity_users_home...
         Mounting /var...
         Mounting /cohesity_logs...
[  OK  ] Mounted /cohesity_users_home.
[  OK  ] Mounted /var.
[  OK  ] Mounted /boot.
[  OK  ] Mounted /cohesity_logs.
         Mounting /boot/efi...
         Mounting /var/log/audit...
         Starting Flush Journal to Persistent Storage...
         Starting Load/Save Random Seed...
[  OK  ] Mounted /boot/efi.
[  OK  ] Mounted /var/log/audit.
[  OK  ] Started Load/Save Random Seed.
[  OK  ] Reached target Local File Systems.
         Starting Relabel all filesystems, if necessary...
         Starting Tell Plymouth To Write Out Runtime Data...
         Starting Preprocess NFS configuration...
         Starting Import network configuration from initramfs...
[  OK  ] Started Tell Plymouth To Write Out Runtime Data.
[   47.546557] systemd-shutdown[3775]: Failed to remount '/var' read-only: Device or resource busy
[   47.557937] systemd-shutdown[1]: Failed to wait for process: Protocol error
[   47.734879] systemd-shutdown[3785]: Failed to remount '/var' read-only: Device or resource busy
[   47.746112] systemd-shutdown[1]: Failed to wait for process: Protocol error
```

IPMI Warning on Cohesity System Health Status

When the Cohesity cluster is configured, you may see “IPMI config Absent” alerts on Cohesity Health Tab. Cisco X-Series with Cohesity does not require any IPMI configuration on the cluster. Please ignore this warning or contact Cohesity support for more details.

The warning is detailed below:



Details for IpmiConfigAbsent

25 Occurrences | First Occurrence Jun 5, 2023 7:58am | Last Occurrence Jun 5, 2023 10:04am

May 30, 2023 - Jun 05, 2023

Chart

Chart with 25 data points.
The chart has 1 X axis displaying Time. Range: 2023-06-05 00:00:00 to 2023-06-05 23:59:59.
The chart has 1 Y axis displaying values. Range: -1 to 3.

End of interactive chart.

Alert Code	Severity	Type	Category	Status
CE03701074	Info	Maintenance	Configuration	Active

Description
IPMI config is absent on cluster id 2138224323806634.

Cause
IPMI Config is highly recommended on physical cluster but not configured.

Resolution

● Create new resolution ○ Associate with existing resolution

Appendix D - Recommended for You

Cisco Intersight

Cisco Intersight Help Center: https://intersight.com/help/saas/home

Cisco UCS X-Series

Product Installation Guide: https://www.cisco.com/c/en/us/support/servers-unified-computing/ucs-x-series-modular-system/products-installation-guides-list.html

Cohesity on Cisco

https://www.cisco.com/c/en/us/solutions/global-partners/cohesity.html

https://www.cohesity.com/solutions/technology-partners/cisco/

Cohesity Cloud Edition Setup Guide for AWS

Install Guide: https://docs.cohesity.com/Setup/PDFs/SetupGuideCloudEditionAWS.pdf.

Cohesity on Cisco X-Series

Install Guide: https://docs.cohesity.com/hardware/PDFs/SetupGuideCiscoXseries.pdf

Ansible Automation

Ansible automation for Cohesity server profile for Cisco UCS X-Series: https://developer.cisco.com/codeexchange/github/repo/ucs-compute-solutions/intersight_cohesity_xseries_ansible/

Appendix E - Glossary

This glossary addresses some terms used in this document, for the purposes of aiding understanding. This is not a complete list of all multicloud terminology. Some Cisco product links are supplied here also, where considered useful for the purposes of clarity, but this is by no means intended to be a complete list of all applicable Cisco products.

aaS/XaaS **(IT capability provided as a Service)**	Some IT capability, X, provided as a service (XaaS). Some benefits are: • The provider manages the design, implementation, deployment, upgrades, resiliency, scalability, and overall delivery of the service and the infrastructure that supports it. • There are very low barriers to entry, so that services can be quickly adopted and dropped in response to business demand, without the penalty of inefficiently utilized CapEx. • The service charge is an IT OpEx cost (pay-as-you-go), whereas the CapEx and the service infrastructure is the responsibility of the provider. • Costs are commensurate to usage and hence more easily controlled with respect to business demand and outcomes. Such services are typically implemented as “microservices,” which are accessed via REST APIs. This architectural style supports composition of service components into systems. Access to and management of aaS assets is via a web GUI and/or APIs, such that Infrastructure-as-code (IaC) techniques can be used for automation, for example, Ansible and Terraform. The provider can be any entity capable of implementing an aaS “cloud-native” architecture. The cloud-native architecture concept is well-documented and supported by open-source software and a rich ecosystem of services such as training and consultancy. The provider can be an internal IT department or any of many third-party companies using and supporting the same open-source platforms.

	Service access control, integrated with corporate IAM, can be mapped to specific users and business activities, enabling consistent policy controls across services, wherever they are delivered from.
Ansible	An infrastructure automation tool, used to implement processes for instantiating and configuring IT service components, such as VMs on an IaaS platform. Supports the consistent execution of processes defined in YAML "playbooks" at scale, across multiple targets. Because the Ansible artefacts (playbooks) are text-based, they can be stored in a Source Code Management (SCM) system, such as GitHub. This allows for software development like processes to be applied to infrastructure automation, such as, Infrastructure-as-code (see IaC below). https://www.ansible.com
PaaS **(Platform-as-a-Service)**	PaaS is a layer of value-add services, typically for application development, deployment, monitoring, and general lifecycle management. The use of IaC with IaaS and PaaS is very closely associated with DevOps practices.
Private on-premises data center	A data center infrastructure housed within an environment owned by a given enterprise is distinguished from other forms of data center, with the implication that the private data center is more secure, given that access is restricted to those authorized by the enterprise. Thus, circumstances can arise where very sensitive IT assets are only deployed in a private data center, in contrast to using public IaaS. For many intents and purposes, the underlying technology can be identical, allowing for hybrid deployments where some IT assets are privately deployed but also accessible to other assets in public IaaS. IAM, VPNs, firewalls, and similar are key technologies needed to underpin the security of such an arrangement.
REST API	Representational State Transfer (REST) APIs is a generic term for APIs accessed over HTTP(S), typically transporting data encoded in JSON or XML. REST APIs have the advantage that they support distributed systems, communicating over HTTP, which is a well-understood protocol from a security management perspective. REST APIs are another element of a cloud-native applications architecture, alongside microservices. https://en.wikipedia.org/wiki/Representational_state_transfer
SaaS **(Software-as-a-Service)**	End-user applications provided "aaS" over the public Internet, with the underlying software systems and infrastructure owned and managed by the provider.

Appendix F - Acronyms

AAA—Authentication, Authorization, and Accounting

ACP—Access-Control Policy

ACI—Cisco Application Centric Infrastructure

ACK—Acknowledge or Acknowledgement

ACL—Access-Control List

AD—Microsoft Active Directory

AFI—Address Family Identifier

AMP—Cisco Advanced Malware Protection

AP—Access Point

API—Application Programming Interface

APIC– Cisco Application Policy Infrastructure Controller (ACI)

ASA–Cisco Adaptative Security Appliance

ASM–Any-Source Multicast (PIM)

ASR–Aggregation Services Router

Auto-RP–Cisco Automatic Rendezvous Point protocol (multicast)

AVC–Application Visibility and Control

BFD–Bidirectional Forwarding Detection

BGP–Border Gateway Protocol

BMS–Building Management System

BSR–Bootstrap Router (multicast)

BYOD–Bring Your Own Device

CAPWAP–Control and Provisioning of Wireless Access Points Protocol

CDP–Cisco Discovery Protocol

CEF–Cisco Express Forwarding

CMD–Cisco Meta Data

CPU–Central Processing Unit

CSR–Cloud Services Routers

CTA–Cognitive Threat Analytics

CUWN–Cisco Unified Wireless Network

CVD–Cisco Validated Design

CYOD–Choose Your Own Device

DC–Data Center

DHCP–Dynamic Host Configuration Protocol

DM–Dense-Mode (multicast)

DMVPN–Dynamic Multipoint Virtual Private Network

DMZ–Demilitarized Zone (firewall/networking construct)

DNA–Cisco Digital Network Architecture

DNS–Domain Name System

DORA–Discover, Offer, Request, ACK (DHCP Process)

DWDM–Dense Wavelength Division Multiplexing

ECMP–Equal Cost Multi Path

EID–Endpoint Identifier

EIGRP–Enhanced Interior Gateway Routing Protocol

EMI–Electromagnetic Interference

ETR–Egress Tunnel Router (LISP)

EVPN–Ethernet Virtual Private Network (BGP EVPN with VXLAN data plane)

FHR–First-Hop Router (multicast)

FHRP–First-Hop Redundancy Protocol

FMC–Cisco Firepower Management Center

FTD–Cisco Firepower Threat Defense

GBAC–Group-Based Access Control

GbE–Gigabit Ethernet

Gbit/s–Gigabits Per Second (interface/port speed reference)

GRE–Generic Routing Encapsulation

GRT–Global Routing Table

HA–High-Availability

HQ–Headquarters

HSRP–Cisco Hot-Standby Routing Protocol

HTDB–Host-tracking Database (SD-Access control plane node construct)

IBNS–Identity-Based Networking Services (IBNS 2.0 is the current version)

ICMP– Internet Control Message Protocol

IDF–Intermediate Distribution Frame; essentially a wiring closet.

IEEE–Institute of Electrical and Electronics Engineers

IETF–Internet Engineering Task Force

IFM–Intelligent Fabric Module

IGP–Interior Gateway Protocol

IID–Instance-ID (LISP)

IOE–Internet of Everything

IoT–Internet of Things

IP–Internet Protocol

IPAM–IP Address Management

IPS–Intrusion Prevention System

IPSec–Internet Protocol Security

ISE–Cisco Identity Services Engine

ISR–Integrated Services Router

IS-IS–Intermediate System to Intermediate System routing protocol

ITR–Ingress Tunnel Router (LISP)

LACP–Link Aggregation Control Protocol

LAG–Link Aggregation Group

LAN–Local Area Network

L2 VNI–Layer 2 Virtual Network Identifier; as used in SD-Access Fabric, a VLAN.

L3 VNI– Layer 3 Virtual Network Identifier; as used in SD-Access Fabric, a VRF.

LHR–Last-Hop Router (multicast)

LISP–Location Identifier Separation Protocol

MAC–Media Access Control Address (OSI Layer 2 Address)

MAN–Metro Area Network

MEC–Multichassis EtherChannel, sometimes referenced as ***MCEC***

MDF–Main Distribution Frame; essentially the central wiring point of the network.

MnT–Monitoring and Troubleshooting Node (Cisco ISE persona)

MOH–Music on Hold

MPLS–Multiprotocol Label Switching

MR–Map-resolver (LISP)

MS–Map-server (LISP)

MSDP–Multicast Source Discovery Protocol (multicast)

MTU–Maximum Transmission Unit

NAC–Network Access Control

NAD–Network Access Device

NAT–Network Address Translation

NBAR–Cisco Network-Based Application Recognition (NBAR2 is the current version).

NFV–Network Functions Virtualization

NSF–Non-Stop Forwarding

OSI–Open Systems Interconnection model

OSPF–Open Shortest Path First routing protocol

OT–Operational Technology

PAgP–Port Aggregation Protocol

PAN–Primary Administration Node (Cisco ISE persona)

PCI DSS—Payment Card Industry Data Security Standard

PD—Powered Devices (PoE)

PETR—Proxy-Egress Tunnel Router (LISP)

PIM—Protocol-Independent Multicast

PITR—Proxy-Ingress Tunnel Router (LISP)

PnP—Plug-n-Play

PoE—Power over Ethernet (Generic term, may also refer to IEEE 802.3af, 15.4W at PSE)

PoE+—Power over Ethernet Plus (IEEE 802.3at, 30W at PSE)

PSE—Power Sourcing Equipment (PoE)

PSN—Policy Service Node (Cisco ISE persona)

pxGrid—Platform Exchange Grid (Cisco ISE persona and publisher/subscriber service)

PxTR—Proxy-Tunnel Router (LISP - device operating as both a PETR and PITR)

QoS—Quality of Service

RADIUS—Remote Authentication Dial-In User Service

REST—Representational State Transfer

RFC—Request for Comments Document (IETF)

RIB—Routing Information Base

RLOC—Routing Locator (LISP)

RP—Rendezvous Point (multicast)

RP—Redundancy Port (WLC)

RP—Route Processer

RPF—Reverse Path Forwarding

RR—Route Reflector (BGP)

RTT—Round-Trip Time

SA—Source Active (multicast)

SAFI—Subsequent Address Family Identifiers (BGP)

SD—Software-Defined

SDA—Cisco Software Defined-Access

SDN—Software-Defined Networking

SFP—Small Form-Factor Pluggable (1 GbE transceiver)

SFP+— Small Form-Factor Pluggable (10 GbE transceiver)

SGACL—Security-Group ACL

SGT–Scalable Group Tag, sometimes reference as Security Group Tag

SM–Spare-mode (multicast)

SNMP–Simple Network Management Protocol

SSID–Service Set Identifier (wireless)

SSM–Source-Specific Multicast (PIM)

SSO–Stateful Switchover

STP–Spanning-tree protocol

SVI–Switched Virtual Interface

SVL–Cisco StackWise Virtual

SWIM–Software Image Management

SXP–Scalable Group Tag Exchange Protocol

Syslog–System Logging Protocol

TACACS+–Terminal Access Controller Access-Control System Plus

TCP–Transmission Control Protocol (OSI Layer 4)

UCS– Cisco Unified Computing System

UDP–User Datagram Protocol (OSI Layer 4)

UPoE–Cisco Universal Power Over Ethernet (60W at PSE)

UPoE+– Cisco Universal Power Over Ethernet Plus (90W at PSE)

URL–Uniform Resource Locator

VLAN–Virtual Local Area Network

VM—Virtual Machine

VN–Virtual Network, analogous to a VRF in SD-Access

VNI–Virtual Network Identifier (VXLAN)

vPC–virtual Port Channel (Cisco Nexus)

VPLS–Virtual Private LAN Service

VPN–Virtual Private Network

VPNv4–BGP address family that consists of a Route-Distinguisher (RD) prepended to an IPv4 prefix

VPWS–Virtual Private Wire Service

VRF–Virtual Routing and Forwarding

VSL–Virtual Switch Link (Cisco VSS component)

VSS–Cisco Virtual Switching System

VXLAN–Virtual Extensible LAN

WAN—Wide-Area Network

WLAN—Wireless Local Area Network (generally synonymous with IEEE 802.11-based networks)

WoL—Wake-on-LAN

xTR—Tunnel Router (LISP - device operating as both an ETR and ITR)

Feedback

For comments and suggestions about this guide and related guides, join the discussion on Cisco Community at https://cs.co/en-cvds.

CVD Program

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