



# **Cisco Intersight with NetApp ONTAP storage quick start guide**

**FlexPod**

NetApp  
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# Table of Contents

- Cisco Intersight with NetApp ONTAP storage quick start guide . . . . . 1
  - Cisco Intersight with NetApp ONTAP storage: quick start guide . . . . . 1
  - Requirements . . . . . 1
  - Before you begin . . . . . 2
  - Claim targets . . . . . 7
  - Monitor NetApp storage from Cisco Intersight . . . . . 8
  - Use cases . . . . . 10
  - References . . . . . 12

# Cisco Intersight with NetApp ONTAP storage quick start guide

## Cisco Intersight with NetApp ONTAP storage: quick start guide

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In partnership with:



### Introduction

NetApp and Cisco have partnered to provide Cisco Intersight, a single-pane view of the FlexPod ecosystem. This simplified integration creates a unified management platform for all components in the FlexPod infrastructure and FlexPod solution. Cisco Intersight allows you to monitor NetApp storage, Cisco compute, and VMware inventory. It also allows you to orchestrate or automate workflows to accomplish storage and virtualization tasks in tandem.

For more information, see [TR 4883: FlexPod Datacenter with ONTAP 9.8](#), [ONTAP Storage Connector for Cisco Intersight](#), and [Cisco Intersight Managed Mode](#).

### Requirements

Check that you meet the hardware, software, and licensing requirements for NetApp ONTAP storage integration with Cisco Intersight.

#### Hardware and software requirements

These are the minimum hardware and software components required to implement the solution. The components that are used in any particular implementation of the solution might vary based on customer requirements.

Component	Requirement details
NetApp ONTAP	ONTAP 9.7P1 and later
NetApp Active IQ Unified Manager	NetApp Active IQ Unified Manager 9.8P1 and later
NetApp Storage Array	All ONTAP ASA, AFF, and FAS storage array supported for ONTAP 9.7P1 and later
Virtualization Hypervisor	vSphere 6.7 and later



Refer to [Cisco Intersight Managed Mode for FlexPod](#) for the minimum requirements of Cisco UCS Compute Components and UCSM version.

## Cisco Intersight licensing requirements

Cisco Intersight is licensed on a subscription basis with multiple license editions from which to choose. Capabilities increase with the different license types. You can purchase a subscription duration of one, three, or five years and choose the required Cisco UCS Server volume tier for the selected subscription duration. Each Cisco endpoint automatically includes a Cisco Intersight Base at no additional cost when you access the Cisco Intersight portal and claim a device.

You can purchase any of the following higher-tier Intersight licenses using the Cisco ordering tool:

- **Cisco Intersight Essentials.** Essentials includes all functionality of the Base tier with the additional features including Cisco UCS Central and Cisco IMC Supervisor entitlement, policy-based configuration with Service 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. It includes storage widgets, storage inventory, storage capacity, and storage utilization, and cross-domain inventory correlation across physical compute, physical storage, and virtual environments (VMware ESXi).
- **Cisco Intersight Premier.** In addition to the capabilities provided in the Advantage tier, Cisco Intersight Premier offers Private Cloud Infrastructure-as-a-Service (IaaS) orchestration across Cisco UCS, and third-party systems, including virtual machines (VMs) (VMware vCenter) and physical storage (NetApp storage).

For more information about the features covered by various licensing tiers, go to [Cisco Licensing](#).

## Before you begin

To monitor and orchestrate NetApp storage from Cisco Intersight, you need NetApp Active IQ Unified Manager and Cisco Intersight Assist Virtual Appliance installed in the vCenter environment.

### Install or Upgrade NetApp Active IQ Unified Manager

Install or upgrade to Active IQ Unified Manager 9.8p1 or later if you have not done so. For instructions, go to the [Unified Manager 9.8 Documentation Center](#).

### Install Cisco Intersight Assist Virtual Appliance

Ensure that you meet the [Cisco Intersight Virtual Appliance Licensing, System, and Network requirements](#).

#### Steps

1. Create a Cisco Intersight Account.  
Visit <https://intersight.com/> to create your Intersight account. You must have a valid Cisco ID to create a Cisco Intersight account.
2. Download the Intersight Virtual Appliance at [software.cisco.com](https://software.cisco.com). For more information, go to the [Intersight Appliance Install and Upgrade Guide](#).
3. Deploy the OVA. DNS and NTP are required to deploy the OVA.
  - a. Configure DNS with A/PTR and CNAME Alias records prior to deploying the OVA. See the example below.

example hostname used for A / PTR records:

A/PTR Record:  
intersightassist (172.28.224.100)

CNAME requires dc- with FQDN hostname  
CNAME Record:  
dc-intersightassist (intersightassist.tmedemo.cisco.com)

Record Name	Type	Value	Class
dc-grewilki-intersight	Alias (CNAME)	intersight.tmedemo.cisco.com.	static
dc-intersight	Host (A)	172.28.224.97	static
grewilki-intersight	Host (A)	172.28.224.79	static
intersight	Host (A)	172.28.224.100	static
intersightassist	Host (A)	172.28.224.100	static
dc-intersightassist	Alias (CNAME)	intersightassist.tmedemo.cisco.com	

- b. Choose the appropriate configuration size (Tiny, Small, or Medium) based on your OVA deployment requirements for Intersight Virtual Appliance.

**TIP:** For a two-node ONTAP cluster with a large number of storage objects, NetApp recommends that you use the Small (16 vCPU, 32 Gi RAM) option.

### Deploy OVF Template

- 1 Select an OVF template
- 2 Select a name and folder
- 3 Select a compute resource
- 4 Review details
- 5 Configuration**
- 6 Select storage
- 7 Select networks
- 8 Customize template
- 9 Ready to complete

**Configuration**

Select a deployment configuration

	Description
<input checked="" type="radio"/> Small(16 vCPU, 32 Gi RAM)	Deployment size supports Intersight Assist only.
<input type="radio"/> Medium(24 vCPU, 64 Gi RAM)	
<input type="radio"/> Tiny(8 vCPU, 16 Gi RAM)	

3 items

CANCEL

BACK

NEXT

- c. On the **Customize Template** page, customize the deployment properties of the OVF template. The administrator password is used for the local users: admin(webUI/cli/ssh).

## Deploy OVF Template

✓ 1 Select an OVF template

✓ 2 Select a name and folder

✓ 3 Select a compute resource

✓ 4 Review details

✓ 5 Configuration

✓ 6 Select storage

✓ 7 Select networks

**8 Customize template**

9 Ready to complete

### Customize template

Customize the deployment properties of this software solution.

✓ All properties have valid values

Uncategorized	8 settings
Enable DHCP	Use DHCP for networking. All static params will be ignored. <input type="checkbox"/>
IP Address	IPv4 address (Must have PTR record in your DNS) <input type="text"/>
Net Mask	IPv4 Network Mask <input type="text" value="255.255.255.0"/>
Default Gateway	IPv4 Default Gateway <input type="text"/>
DNS Domain	DNS Search Domain <input type="text"/>
DNS Servers	Comma-separated list of DNS servers <input type="text"/>

CANCEL

BACK

NEXT

## Deploy OVF Template

- ✓ 1 Select an OVF template
- ✓ 2 Select a name and folder
- ✓ 3 Select a compute resource
- ✓ 4 Review details
- ✓ 5 Configuration
- ✓ 6 Select storage
- ✓ 7 Select networks
- 8 Customize template**
- 9 Ready to complete

Net Mask	IPv4 Network Mask
	255.255.255.0
Default Gateway	IPv4 Default Gateway
DNS Domain	DNS Search Domain
DNS Servers	Comma-separated list of DNS servers
Administrator password	Password for local admin account
	Password <input type="password"/> Confirm Password <input type="password"/>
NTP Server	Comma-separated list of NTP servers. If no servers are provided, NIST servers will be configured.
	<input type="text"/>

CANCEL
BACK
NEXT

d. Click **Next**.

#### 4. Post-deploy the Intersight Assist Appliance.

a. Navigate to <https://FQDN-of-your-appliance> to complete the post-install set-up of your appliance.

The installation process automatically begins. Installation can take up to one hour depending on bandwidth to Intersight.com. It can also take several seconds for the secure site to be operational after the VM powers on.

b. During the post-deployment process, select what you would like to install:

- **Intersight Connected Virtual Appliance.** This deployment requires a connection back to Cisco and Intersight services for updates and access to required services for full functionality of Intersight.com.
- **Intersight Private Virtual Appliance.** This deployment is intended for an environment where you operate data centers in a disconnected (air gap) mode.
- **Intersight Assist.** This deployment enables SaaS model to connect to Cisco Intersight.



If you select Intersight Assist, take note of the device ID and claim code before you continue.

What would you like to Install ?

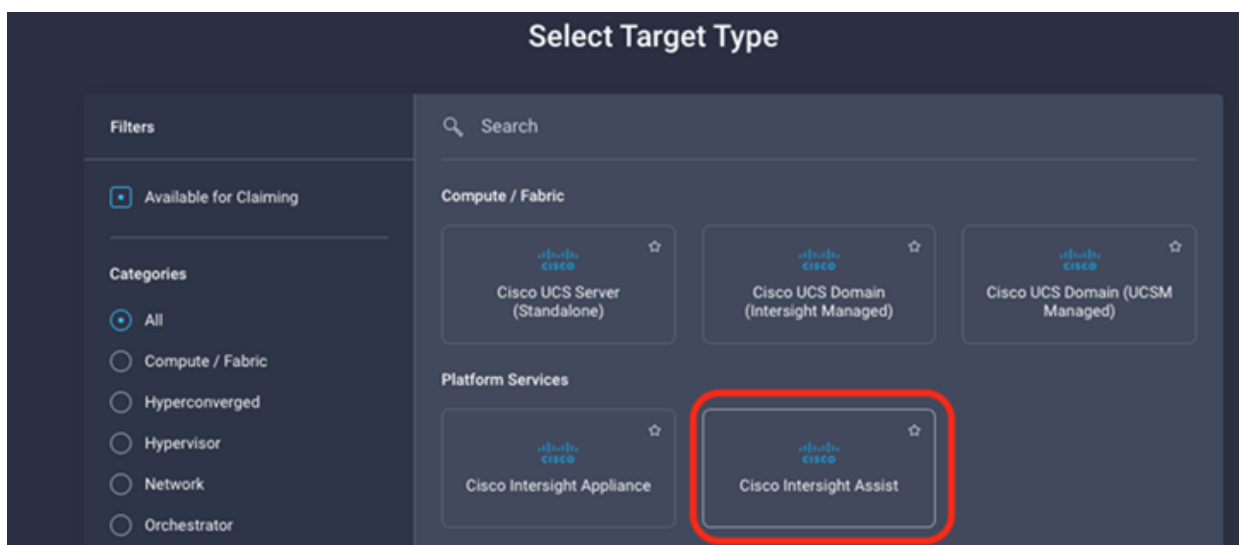
☐ Intersight Connected Virtual Appliance

☐ Intersight Private Virtual Appliance

☐ Intersight Assist

[Recover from backup](#) [Proceed](#)

- c. Click **Proceed**.
- d. If you selected **Intersight Assist**, complete the following steps:
  - i. Navigate to your SaaS Intersight account at <https://intersight.com>.
  - ii. Click **Targets**, **Cisco Intersight Assist**, and then **Start**.
  - iii. Claim the **Cisco Intersight Assist** appliance by copying and pasting the device ID and claim code from your newly deployed Intersight Assist virtual appliance.



- iv. Return to the **Cisco Intersight Assist** appliance and click **Continue**. You might need to refresh the browser.



The download and installation process begins. The binaries are transferred from Intersight Cloud to your on-prem appliance. Completion time varies depending on your bandwidth to the Intersight Cloud.

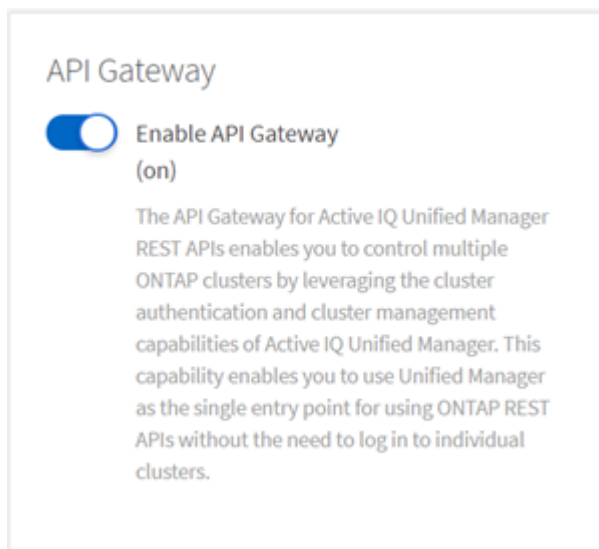
## Claim targets

After Cisco Intersight Assist is installed, you can claim your NetApp storage and virtualization devices. Return to the **Intersight Targets** page and add your vCenter and NetApp Active IQ Unified Manager targets. For more information about the claim process, watch the video [Claim a Target via Cisco Intersight Assist](#).



Make sure that the NetApp Active IQ Unified Manager (AIQ UM) API Gateway is enabled.

Navigate to **Settings > General > Feature Settings**.



The following example shows the NetApp AIQ UM target being claimed from Cisco Intersight.

**NetApp Active IQ Unified Manager**

To claim any on-premises target an Intersight Assist Appliance is required. Deploy and claim an Assist Appliance if needed before claiming the target

This target is intended for the functionality of Intersight Orchestrator

Intersight Assist \*  
isassist.cie.netapp.com

Hostname/IP Address \*  
NTAPAIQUM.fp.netapp.com

Username \*  
admin

Password \*  
.....

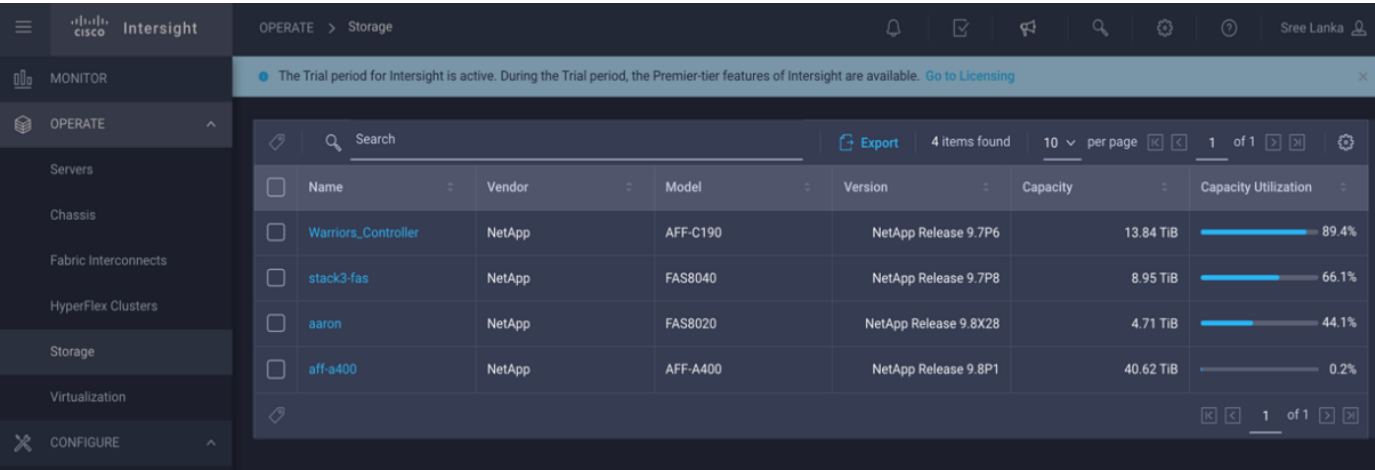
☒ Secure

# Monitor NetApp storage from Cisco Intersight

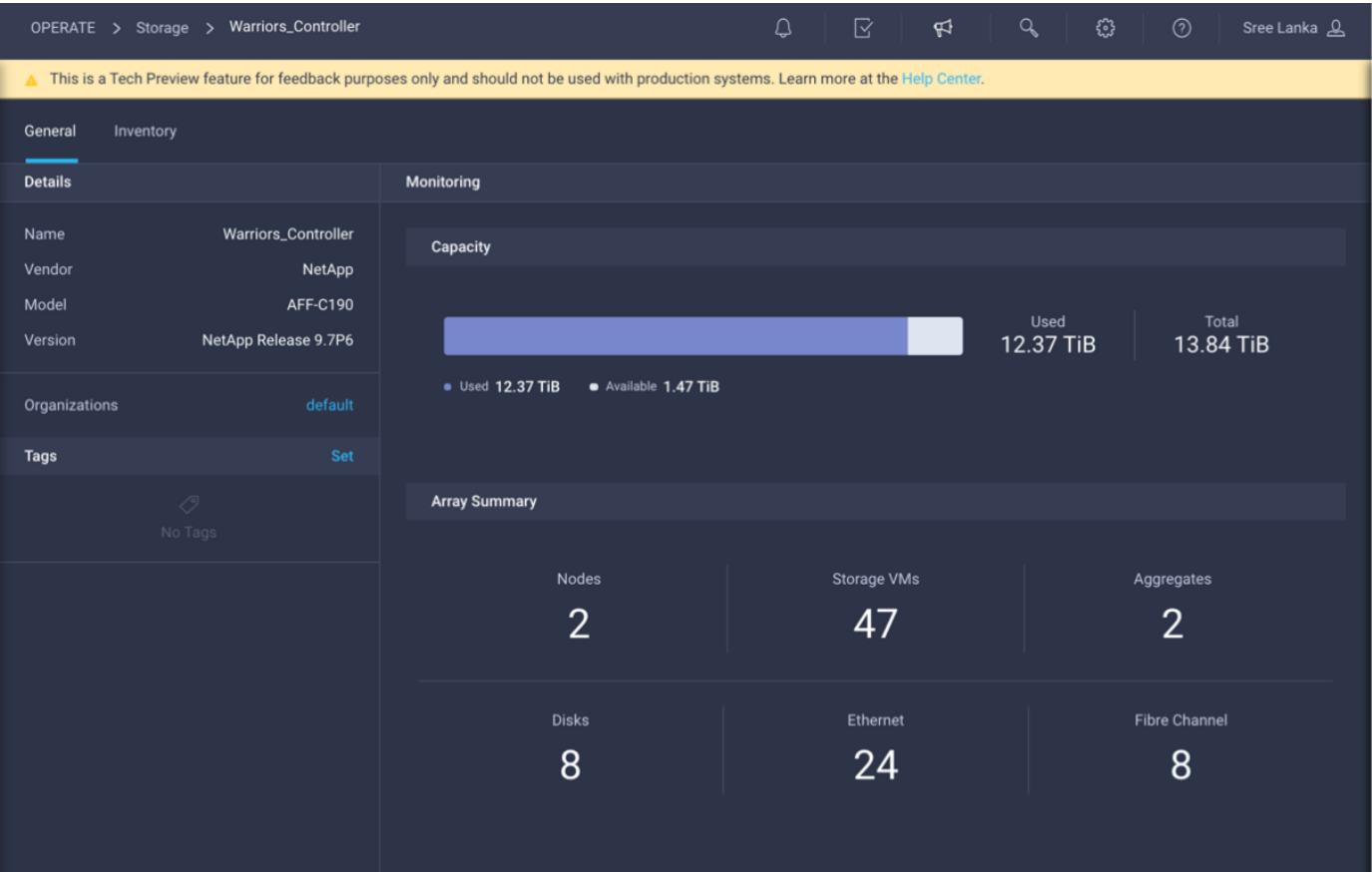
After targets are claimed, NetApp storage widgets, storage inventory, and virtualization tabs become available if you have an Advantage tier license. Orchestration tabs are available if you have a Premier tier license.

## Storage inventory overview

The following screenshot displays the **Operate > Storage** screen.



The following screenshot shows the storage cluster overview.



## Storage widgets

To view storage widgets, navigate to **Monitoring > Dashboards > View NetApp storage widgets**.

- The following screenshot shows the Storage Version Summary widget.



- This screenshot shows the Top 5 Storage Arrays by Capacity Utilization widget.

Top 5 Storage Arrays by Capacity Utilization				
#	Name	Vendor	Capacity	Utilization
1	Warriors_Controller	NetApp	13.83 TiB	<div><div></div></div> 89.4%
2	stack3-fas	NetApp	8.95 TiB	<div><div></div></div> 66.2%
3	aaron	NetApp	4.71 TiB	<div><div></div></div> 44.1%
4	aff-a400	NetApp	40.62 TiB	<div><div></div></div> 0.2%

- This screenshot shows the Top 5 Storage Volumes by Capacity Utilization widget.

Top 5 Storage Volumes by Capacity Utilization				
#	Name	Vendor	Capacity	Utilization
1	test_1_vol	NetApp	10.31 GiB	<div><div></div></div> 98.6%
2	test_lun_vol	NetApp	10.31 GiB	<div><div></div></div> 97.9%
3	vmware_server_1	NetApp	50.00 GiB	<div><div></div></div> 95.0%
4	vmware_server_2	NetApp	50.00 GiB	<div><div></div></div> 82.3%
5	VM_Datastore_vol	NetApp	150.00 GiB	<div><div></div></div> 67.0%

## Use cases

These are a few use case examples for monitoring and orchestration of NetApp storage from Cisco Intersight.

### Use case 1: Monitoring NetApp storage inventory and widgets

When the NetApp storage environment is available in Cisco Intersight, you can monitor NetApp storage objects in detail from storage inventory and get an overview from storage widgets.

1. Deploy Intersight Assist OVA (OnPrem task in vCenter Environment).
2. Add NetApp AIQ UM devices in Intersight Assist.
3. Go to **Storage** and navigate through NetApp storage inventory.
4. Add **Widgets** for NetApp storage to your **Monitor Dashboard**.

Here is a [link](#) to the video showing NetApp ONTAP Storage Monitoring Features from Cisco Intersight.

### Use case 2: NetApp storage orchestration using Reference Workflows

When NetApp storage and vCenter environments are available in Cisco Intersight, you can execute end-to-end Reference Workflows available out of box that include storage and virtualization tasks.

1. Deploy Intersight Assist OVA (OnPrem task in vCenter Environment).
2. Add NetApp AIQ UM devices in Intersight Assist.

3. Add the vCenter target to Intersight via Intersight Assist.
4. Execute Reference Workflows available out of box.

Here is a list of Reference Workflows:

- New Storage Interface
- New VMFS Datastore
- Update VMFS Datastore
- Remove VMFS Datastore
- New NAS Datastore
- Update NAS Datastore
- Remove NAS Datastore
- New Storage Host
- Update Storage Host
- Remove Storage Host
- New Storage Export Policy
- Remove Storage Export Policy
- New Storage Virtual Machine
- New Virtual Machine

### Use case 3: Custom workflows using designer-free form

When the NetApp Storage and vCenter environments are available in Cisco Intersight, you can build custom workflows using the NetApp storage and virtualization tasks.

1. Deploy Intersight Assist OVA (OnPrem task in vCenter Environment)
2. Add NetApp AIQ UM devices in Intersight Assist.
3. Add vCenter target to Intersight via Intersight Assist.
4. Navigate to the **Orchestration** tab in Intersight.
5. Select **Create Workflow**.
6. Add storage and virtualization tasks to your workflows.

Here are the NetApp storage tasks that are available from Cisco Intersight:

- Task 1: Add Storage Export Policy to Volume
- Task 2: Connect Initiators to Storage Host (igroup)
- Task 3: Expand Storage LUN
- Task 4: Expand Storage Volume
- Task 5: Find NetApp igroup LUN Map
- Task 6: Find Storage LUN by ID
- Task 7: Find Storage Volume by ID
- Task 8: New Storage Export Policy

- Task 9: New Storage Fibre Channel Interface
- Task 10: New Storage Host
- Task 11: New storage IP interface
- Task 12: New storage LUN
- Task 13: New storage LUN ID
- Task 14: New Storage Virtual Machine
- Task 15: New storage volume
- Task 16: Remove storage export policy
- Task 17: Remove storage host
- Task 18: Remove storage LUN
- Task 19: Remove storage LUN ID
- Task 20: Remove storage volume

To learn more about customizing workflows with NetApp storage and virtualization tasks, watch the video [NetApp ONTAP Storage Orchestration in Cisco Intersight](#).

## References

To learn more, see the following documents and websites:

[TR 4883: FlexPod Datacenter with ONTAP 9.8, ONTAP Storage Connector for Cisco Intersight, and Cisco Intersight Managed Mode](#)

[Cisco Intersight Managed Mode for FlexPod](#)

[Cisco Intersight Getting Started Overview](#)

[Intersight Appliance Install and Upgrade Guide](#)

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