

Redeploy HyperFlex Software Workflow from Intersight

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Introduction

This document describes the process to redeploy an offline node in Cisco Hyperflex clusters.

Prerequisites

Requirements

This is supported only for Hyperflex clusters deployed from Intersight and starting from version 5.0(2b). Clusters deployed via Hyperflex installer and imported to Intersight are *not* supported for this feature yet.

Type of scenarios supported for this Intersight feature:

- FI/standard Cluster, Stretch Cluster, Edge cluster and DC-No-FI cluster
- Clusters with SED (Self Encrypted Drives)
- Clusters deployed from Intersight only
- ESXi and SCVM redeploy
- Only SCVM redeploy

Not Supported Scenarios

- 1GbE HyperFlex Edge and Stretch clusters.
- Clusters imported to Intersight

Licensing

Intersight Essentials or superior license is required for HyperFlex node redeployment. All the servers in the HyperFlex cluster must be claimed and configured with Intersight Essentials or superior license.

Components Used

- Cisco Intersight
- Cisco UCSM (optional)
- Cisco UCS Servers
- Cisco Hyperflex Cluster version 5.0(2c)
- VMWare ESXi
- VMware vCenter

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Background Information

Maintaining a cluster healthy becomes a priority for multiple reasons but the most important is redundancy for the sake of data integrity in the Hyperconverge storage solution. There are multiple scenarios that require ESXi and SCVM (Storage Controller Virtual Machine) redeploy simultaneously such as replacing the boot drive in converge nodes.

For clusters deployed from Intersight you can redeploy the SCVM to add it back to the Hyperflex cluster, this activity can be now executed without TAC assistance via Intersight.

Warning: It is important to stress that not doing this process successfully can lead into clusters having multiple unexpected issues such as future cluster upgrades failures and cluster expansions failing.

Configuration

For this example we use a 3 Node Edge cluster named Medellin which has gotten node 3 corrupted due to a M.2 disk failure

From Intersight our starting point assumes a couple of aspects are already covered:

- M.2 Storage has already been replaced
- Hyperflex cluster is still unhealthy since it has that node offline

Cluster Node Offline Validation

You can see cluster is unhealthy as explained and you need to recover the node that is offline now that the M.2 issue has been fixed

From Intersight go to Infrastructure Service > Hyperflex Cluster > Overview > Events. You are able to see resiliency status

The screenshot shows the Cisco Intersight interface for HyperFlex Clusters. The left sidebar contains navigation options: Overview, Operate (with sub-items Servers, Chassis, Fabric Interconnects, HyperFlex Clusters, Integrated Systems), and Configure (with sub-items Profiles, Templates, Policies, Pools). A 'New Command Palette' button is at the bottom of the sidebar.

The main content area is titled 'HyperFlex Clusters Medellin'. It has tabs for Overview, Operate, Profile, Capacity Planning, Performance, and Health Check. The 'Overview' tab is active.

The 'Details' section shows the cluster's health status as 'Critical' (red circle with exclamation mark) and 'Storage Resiliency Status' as 'Warning' (yellow triangle with exclamation mark), which is highlighted with a red box. Below this, it states '0 Converged Node failure can be tolerated.' The cluster name is 'Medellin', the Hypervisor Version is 'VMware ESXi 7.0.3 U3 (20328353)', and the HyperFlex Version is '5.0(2c)'. The Deployment Type is partially visible at the bottom.

The 'General' section includes a 'Resource Status' summary with a circular gauge showing 3 TOTAL nodes, 0 Used, and 3 Free. The Capacity Runway is shown as 365+ DAYS. Below this is a 'Nodes' section with a search bar and a table header with columns: Name, Health, Host Status, and Type. The table currently shows 3 items found, 10 per page, and 1 of 1 items.

In the same **Overview** tab you can see what specific node is offline too

The screenshot shows the Cisco Intersight interface for a HyperFlex Cluster named 'Medellin'. The left sidebar contains navigation options: Overview, Operate (selected), Servers, Chassis, Fabric Interconnects, HyperFlex Clusters, Integrated Systems, Configure, Profiles, Templates, Policies, and Pools. The main content area is divided into 'Details' and 'General' sections.

Details Section:

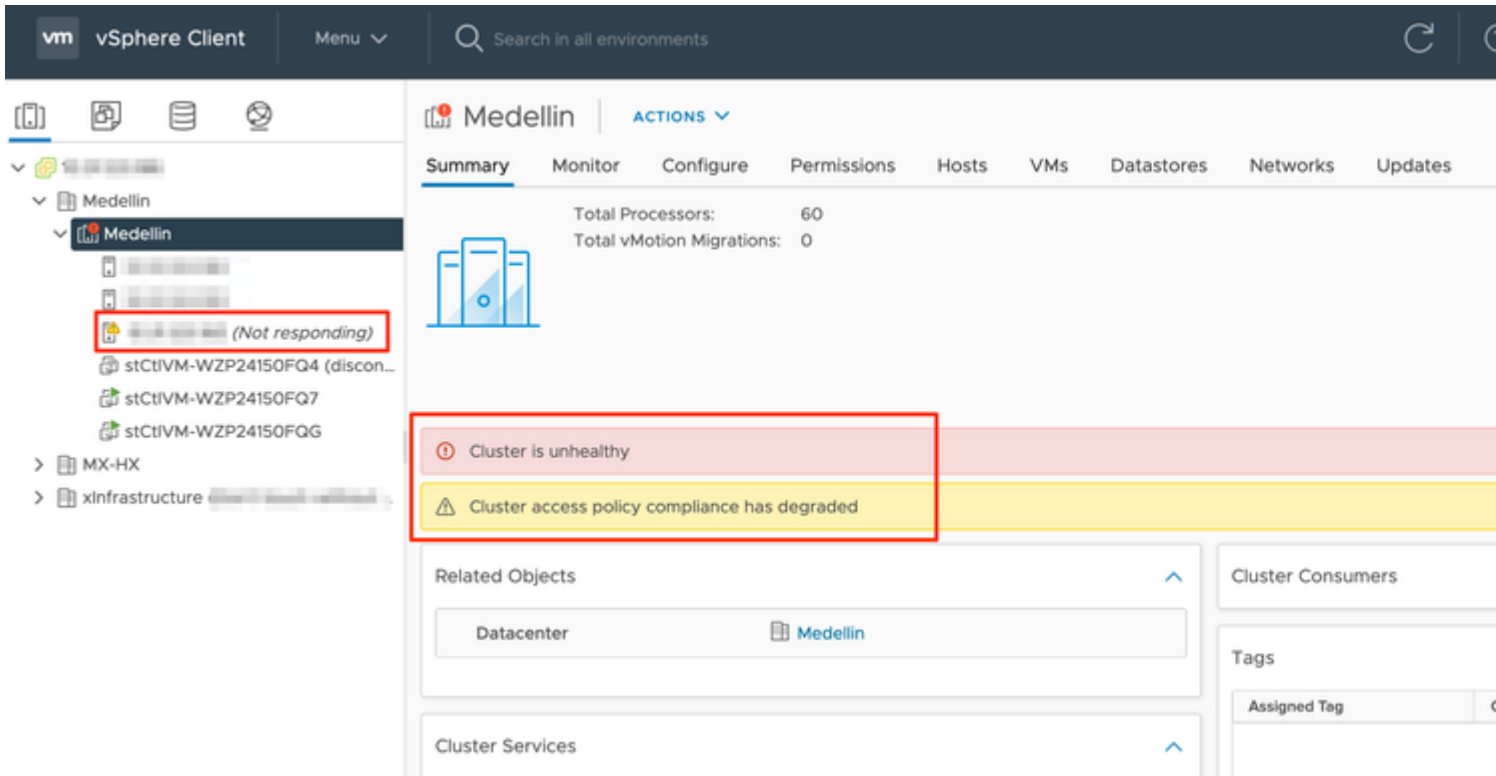
- Health:** Warning (indicated by a yellow triangle icon).
- Storage Resiliency Status:** Warning (indicated by a yellow triangle icon).
- 0 Converged Node failure can be tolerated.**
- Name:** Medellin
- Hypervisor Version:** VMware ESXi 7.0.3 U3 (20328353)
- HyperFlex Version:** 5.0(2c)
- Deployment Type:** Edge
- Uptime:** 23 days 9 hours 41 minutes 50 seconds
- Organizations:** default
- Health Check:** General Check shows 36 (green), 2 (red), 6 (green), and 1 (red) indicators.
- Security Check:** (No indicators visible)

General Section:

- Resource Status:** Storage Utilization TIB: 3 TOTAL (Used 0, Free 3); Capacity Runway: 365+ DAYS.
- Nodes Table:**

Name	Health	Host Status	Type	Model	Serial
Medellin-2	Healthy	Online	Converged	HX240C-MSSD	WZP24150FQ6
Medellin-1	Healthy	Online	Converged	HX240C-MSSD	WZP24150FQ7
Medellin-3	Critical	Offline	Converged	HX240C-MSSD	WZP24150FQ4

From vCenter we also get an alert about cluster being unhealthy



Finally from CLI you can also assess the cluster status:

```
<#root>
```

```
hxshell:~$
```

```
hxcli cluster status
```

```
Cluster UUID : 6104001978967674717:7117835385033814973
```

```
Cluster Ready : Yes
```

```
Resiliency Health : WARNING
```

```
Operational Status : ONLINE
```

```
ZK Quorum Status : ONLINE
```

```
ZK Node Failures Tolerable : 0
```

```
<#root>
```

```
hxshell:~$
```

```
hxcli cluster info
```

```
Cluster Name : Medellin
```

```
Cluster UUID : 6104001978967674717:7117835385033814973
```

```
Cluster State : ONLINE
```

```
Cluster Access Policy : Lenient
```

```
Space Status : NORMAL
```

```
Raw Capacity : 9.8 TiB
```

Total Capacity : 3.0 TiB
Used Capacity : 30.4 GiB
Free Capacity : 3.0 TiB
Compression Savings : 62.06%
Deduplication Savings : 0.00%
Total Savings : 62.06%
of Nodes Configured : 3
of Nodes Online : 2
Data IP Address : 169.254.218.1

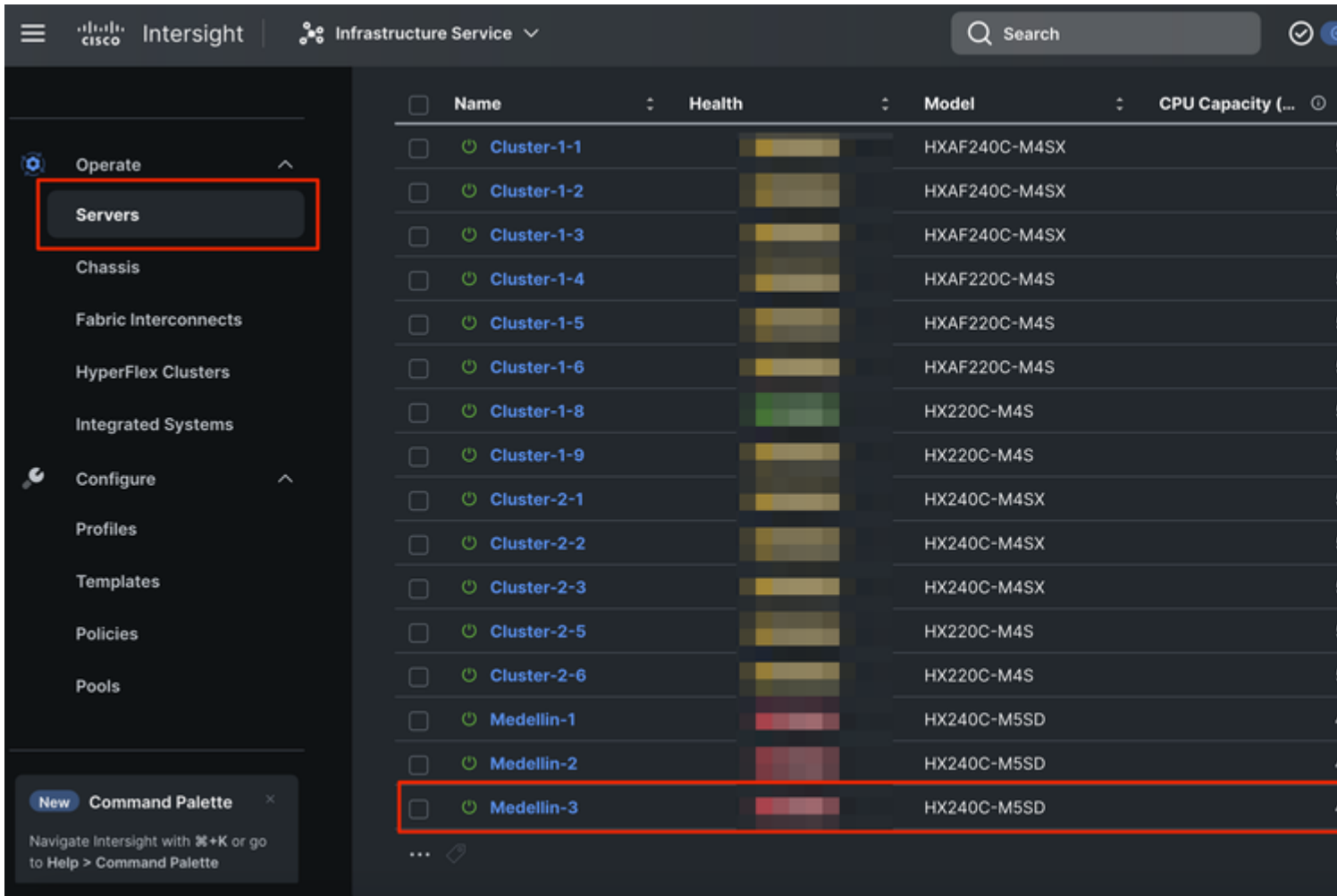
Resiliency Health : WARNING

Policy Compliance : NON_COMPLIANT

Data Replication Factor : 3 Copies
of node failures tolerable : 0
of persistent device failures tolerable : 1
of cache device failures tolerable : 1
Zone Type : Unknown
All Flash : No

Redeploy Steps

Step 1. Reinstall the ESXi OS. For that you can go to **Servers > Select the Server > Options (three dots) > Select Launch the KVM.**



Caution: You must download a Cisco Hyperflex custom image for the same exact ESXi version other nodes are running in the cluster. You can download it from [here](#)

Once KVM is launched Navigate to **Virtual Media** > Select **Activate Virtual Devices**

Create Image

Activate Virtual Devices

Then Select **Browse** > Select the Hyperflex ESXi iso image from your local computer > Select **Map Drive**



Navigate to **Power** > depending on the status of the server select either **Power on System** or **Reset System** or **Power Cycle System**

- Power On System
- Power Off System
- Reset System (warm boot)
- Power Cycle System (cold boot)

Systems, Inc.
guring and testing memory..

Cisco IMC IPv4 : [REDACTED]
MAC ADDR : 3C:57:31:52:63:B8

Tip: *Reset System (warm boot)* reboots the system without powering it off whereas *Power Cycle System (cold boot)* Turns off system and then back on. In this scenario with SCVM corrupted and ESXi being reinstalled both options meet the same purpose

You need to boot into the CD/DVD virtual device device. Navigate to **Tools** > Select **Keyboard** > When you see Boot Menu prompt press **F6**



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Press <F2> BIOS Setup : <F6> Boot Menu <F7> Dia
Press <F8> CIMC Setup : <F12> Network Boot
Bios Version : C240M5.4.1.3m.0.0708220113
Platform ID : C240M5

Processor(s) Intel(R) Xeon(R) Silver 4210 CPU @ 2.20GHz
Total Memory = 128 GB Effective Memory = 128 GB
Memory Operating Speed 2400 Mhz

Cisco IMC IPv4 Address :
Cisco IMC MAC Address : 3C:57:31:52:63:B8

English

Esc	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12
~	!	@	#	\$	%	^	&	*	()	_	+
`	1	2	3	4	5	6	7	8	9	0	=	>
Tab	Q	W	E	R	T	Y	U	I	O	P	[]
⌘												
Caps	A	S	D	F	G	H	J	K	L	:	;	'
Shift	Z	X	C	V	B	N	M	<	>	,	.	/
↑												
Ctrl	Win	Alt										Alt

You get to the boot menu and once there select **Cisco vKVM-Mapped vDVD1.24** and hit **Enter**

English

Esc	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12
~	!	@	#	\$	%	^	&	*	()	-	=
1	2	3	4	5	6	7	8	9	0	-	=	←
Tab	Q	W	E	R	T	Y	U	I	O	P	[]
Tab	Q	W	E	R	T	Y	U	I	O	P	[]
Caps	A	S	D	F	G	H	J	K	L	:	"	Ente
Shift	Z	X	C	V	B	N	M	<	>	?	/	Shif
Shift	Z	X	C	V	B	N	M	<	>	?	/	Shif
Ctrl	Win	Alt								Alt	Menu	CT

```
Please select boot device:
-----
VMware ESXi
UEFI: Built-in EFI Shell
UEFI: Cisco vKVM-Mapped vDVD1.24
Enter Setup
-----
↑ and ↓ to move selection
ENTER to select boot device
ESC to boot using defaults
```

Select **I have read the above notice and wish to continue** and hit **Enter**

HyperFlex ESXi Installer - 7.0 U3 (Build 20328353)

This ISO is designed to be used with HyperFlex HX series converged nodes and supported compute-only nodes. Running this installer will re-image a factory fresh ESXi with customizations required for HyperFlex.

This ISO SHOULD NEVER be used for ESXi upgrades. Instead, use the offline zip bundle available on CCO. WARNING: This ISO is DESTRUCTIVE and should only be used for new cluster creation by trained administrators.

This ISO as booted cannot be used to reimage HyperFlex Edge servers that will be redeployed using the HyperFlex OVA (VM based) installer. You may proceed to re-image a HyperFlex Edge node if redeploying with the Intersight installer. If the OVA installer is needed for HyperFlex Edge, first disable secure boot in the BIOS (or switch to legacy BIOS boot) and reinstall ESXi. After ESXi is installed, the HX installer will reset the server to use UEFI secure boot automatically. Failure to follow these steps will result in a failure during ESXi network provisioning. Consult the field re-image guide for further information.

This notice can be ignored for HyperFlex clusters deployed under Cisco Fabric Interconnects (non HX Edge nodes).

I have read the above notice and wish to continue

Reboot Server



Regularly you see different options for compute nodes depending on what specific boot device is used and another option for converge nodes which is the one you have to select here

HyperFlex ESXi Installer - 7.0 U3 (Build 20328353)

Select an Install Option (NEVER USE FOR UPGRADE):

HyperFlex Converged Node - HX PIDs Only

Compute-Only Node - Install to SD Cards/M.2 SSD

Compute-Only Node - Install to Local Disk (SATA/SAS/MegaRAID)

Compute-Only Node - Install to Remote Disk (SAN)

Fully Interactive Install (DEBUGGING & TAC USE ONLY)

View Help

Shutdown Server

Reboot Server

This is a DESTRUCTIVE process and will reset the node to factory defaults. Only use this ISO if you know what you are doing.

You will be required to enter a username of 'erase' and a password of 'erase' to confirm & agree to your selection.



HyperFlex

After that you get prompted to enter username and password. **Type** username *erase* > hit **Enter** > **Type** password *erase* > hit **Enter**

HyperFlex ESXi Installer - 7.0 U3 (Build 20328353)

Select an Install Option (NEVER USE FOR UPGRADE):

```
Enter username :  
erase  
Enter password :  
_
```

This is
YOU W



Note: if wrong password/username is entered you are taken back one step and then you are able to try again

Install starts at this point and you are able to monitor it via vKVM

```

Loading /efi/boot/crypto64.efi
Loading /b.b00
Loading /jumpstrt.gz
Loading /useropts.gz
Loading /features.gz
Loading /k.b00
```

Step 2. Navigate to **Infrastructure Service > Hyperflex Clusters > Select your Hyperflex cluster > Select Actions > Select Redeploy Node**

The screenshot displays the Cisco Intersight interface for a HyperFlex Cluster named 'Medellin'. The left sidebar shows navigation options like Overview, Operate, Servers, Chassis, Fabric Interconnects, HyperFlex Clusters, Integrated Systems, Configure, Profiles, Templates, Policies, and Pools. The main content area is divided into 'Details' and 'General' sections.

Details Section:

- Health:** Warning (indicated by a yellow triangle icon)
- Storage Resiliency Status:** Warning (indicated by a yellow triangle icon)
- 0 Converged Node failure can be tolerated.**
- Name:** Medellin
- Hypervisor Version:** VMware ESXi 7.0.3 U3 (20328353)
- HyperFlex Version:** 5.0(2c)
- Deployment Type:** Edge
- Uptime:** 3 days 18 hours 29 minutes 56 seconds
- Organizations:** default
- Health Check:** General Check

General Section:

- Resource Status:** 3 TOTAL (Used 0, Free 3)
- Capacity Runway:** Unknown

Nodes Table:

Name	Health	Host Status	Type	Model	Serial
Medellin-2	Critical	Online	Converged	HX240C-M5SD	WZP24
Medellin-1	Critical	Online	Converged	HX240C-M5SD	WZP24
Medellin-3	Critical	Offline	Converged	HX240C-M5SD	WZP24

Tip: if only SCVM is corrupted and needs to be reinstalled then you must power-off the server prior to select Redeploy if not you run into error "Redeploy Node cannot be triggered because there are no offline hosts in this cluster."

Step 3. Select the node offline > Select **Continue**

Redeploy Node

- 1 Node Selection
- 2 Software Configuration
- 3 Summary
- 4 Results

Node Selection

Select the node on which ESXi and Hyperflex Data Platform are to be reinstalled.

i To review and understand the prerequisites, go to [Help Center](#)

🔍 Add Filter

Name	Host Status	Serial No.	Model	Hy
<input checked="" type="radio"/> Medellin-3	Offline	WZP24150FQ4	HX240C-M5SD	

Selected 1 of 1 [Show Selected](#) [Unselect All](#)



[Cancel](#)

Step 4. Verify Security, vCenter and Proxy Settings policies correspond to the same cluster and select **Next**

Redeploy Node

- 1 Node Selection
- 2 Software Configuration
- 3 Summary
- 4 Results

Software Configuration

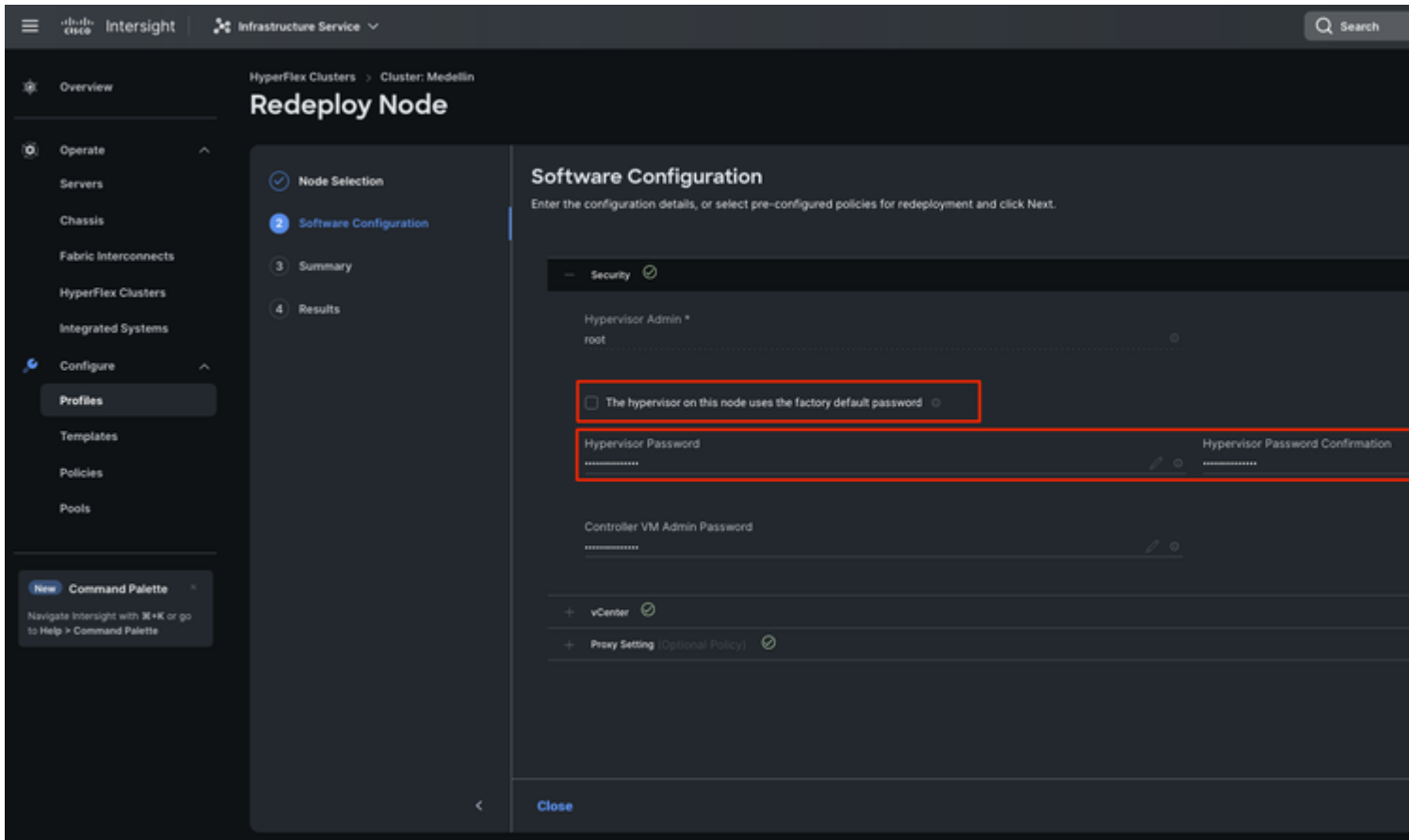
Enter the configuration details, or select pre-configured policies for redeployment and click Next.

- + Security
- + vCenter
- + Proxy Setting (Optional Policy)



Close

However if only SCVM is being redeployed and ESXi is intact then from the Security Policy you must unselect "The hypervisor on this node uses the factory default password" option and make sure the current ESXi password is updated there before selecting **Next**



Step 5. Select Validate and Redeploy

Redeploy Node

- ✓ Node Selection
- ✓ Software Configuration
- 3** Summary
- 4 Results

Summary

Review the node details and click Validate & Redeploy for immediate deployment.

^ Selected Node

Name	Host Status	Serial No.	Model	HyperFlex
Medellin-3	Offline	WZP24150FQ4	HX240C-M5SD	

Software Configuration

Security

vCenter

Proxy Setting



Close

Step 6. Wait for the workflow to complete

Redeploy Node

- ✓ Node Selection
- ✓ Software Configuration
- ✓ Summary
- 4** Results

Results

Monitor the progress and results of the redeployment.

○ Running Configuration...

HyperFlex Cluster Name	Medellin	HyperFlex Cluster Type	Edge	Assigned Nodes	3
Progress	<div style="width: 21%;"><div></div></div> 21%	Start Time	Jun 9, 2023 5:01 PM	Duration	41 m 1 s
Current Stage	Host configuration				

Expand All

All (170) In Progress (0)

10.31.123.160 ○

Preparing E

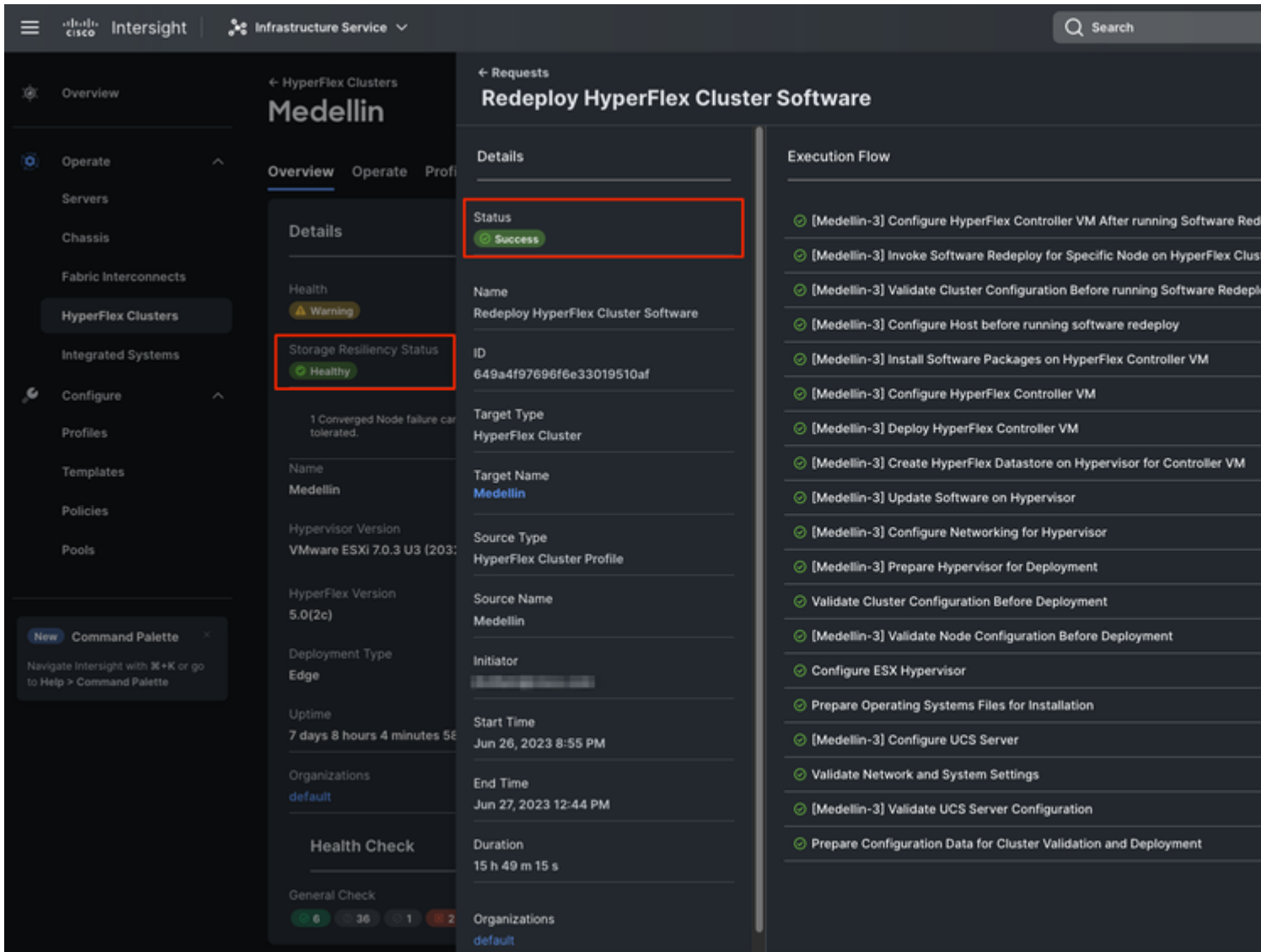
- ✓ Preparing ESXi Host for Installation: plainex : Waiting for ESXi Host To Restart from Cloud
- ✓ Preparing ESXi Host for Installation: plainex : Waiting for ESXi Host To Restart
- ✓ Preparing ESXi Host for Installation: plainex : Waiting for ESXi Host To Shutdown
- ✓ Preparing ESXi Host for Installation: plainex : Reboot ESX
- ✓ Preparing ESXi Host for Installation: plainex : Retrieve ESX boot info from Cloud
- ✓ Preparing ESXi Host for Installation: plainex : Entering in ESXi Host Maintenance Mode
- ✓ Preparing ESXi Host for Installation: plainex : Power Off Controller VM on ESX Host
- ✓ Preparing ESXi Host for Installation: plainex : Check ESXi Host Maintenance mode

<

Close

Note: You can monitor the progress but it usually takes few hours

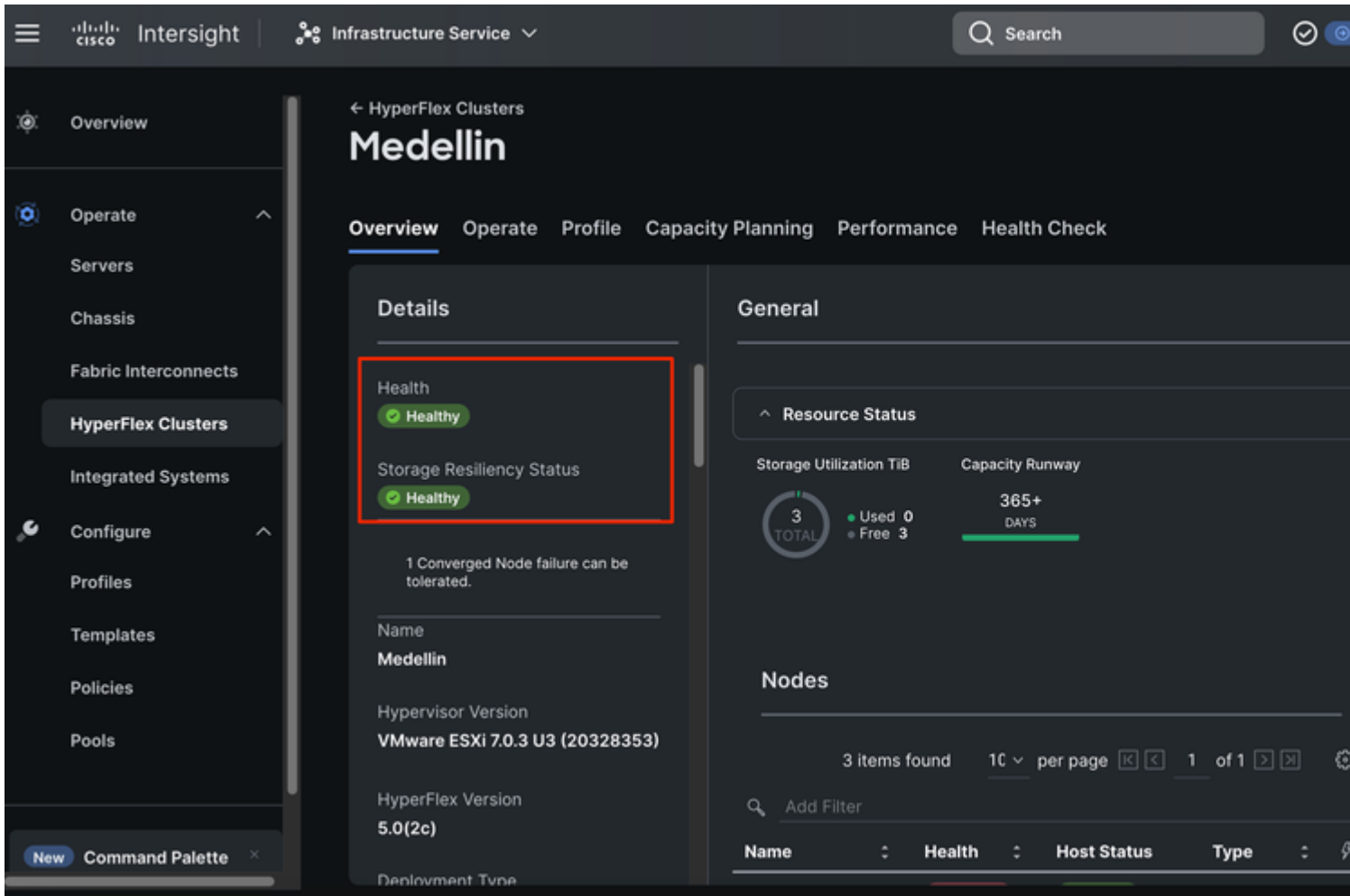
Finally redeploy completed and Medellin cluster is back to healthy status



Cluster Healthy Status Validation

Validation from Intersight

Navigate to **Hyperflex Clusters** > Select the cluster > Select **Overview** tab



Validation from Hyperflex Connect

Lunch HXDP from Intersight to validate the status from there

Overview

← HyperFlex Clusters

Medellin

Operate

Overview Operate Profile Capacity Planning Performance Health Check

Servers

Chassis

Fabric Interconnects

HyperFlex Clusters

Integrated Systems

Configure

Profiles

Templates

Policies

Pools

Details

Health

Healthy

Storage Resiliency Status

Healthy

1 Converged Node failure can be tolerated.

Name

Medellin

Hypervisor Version

VMware ESXi 7.0.3 U3 (20328353)

HyperFlex Version

5.0(2c)

Deployment Type

General

Resource Status

Storage Utilization TiB



Capacity Runway

365+
DAYS

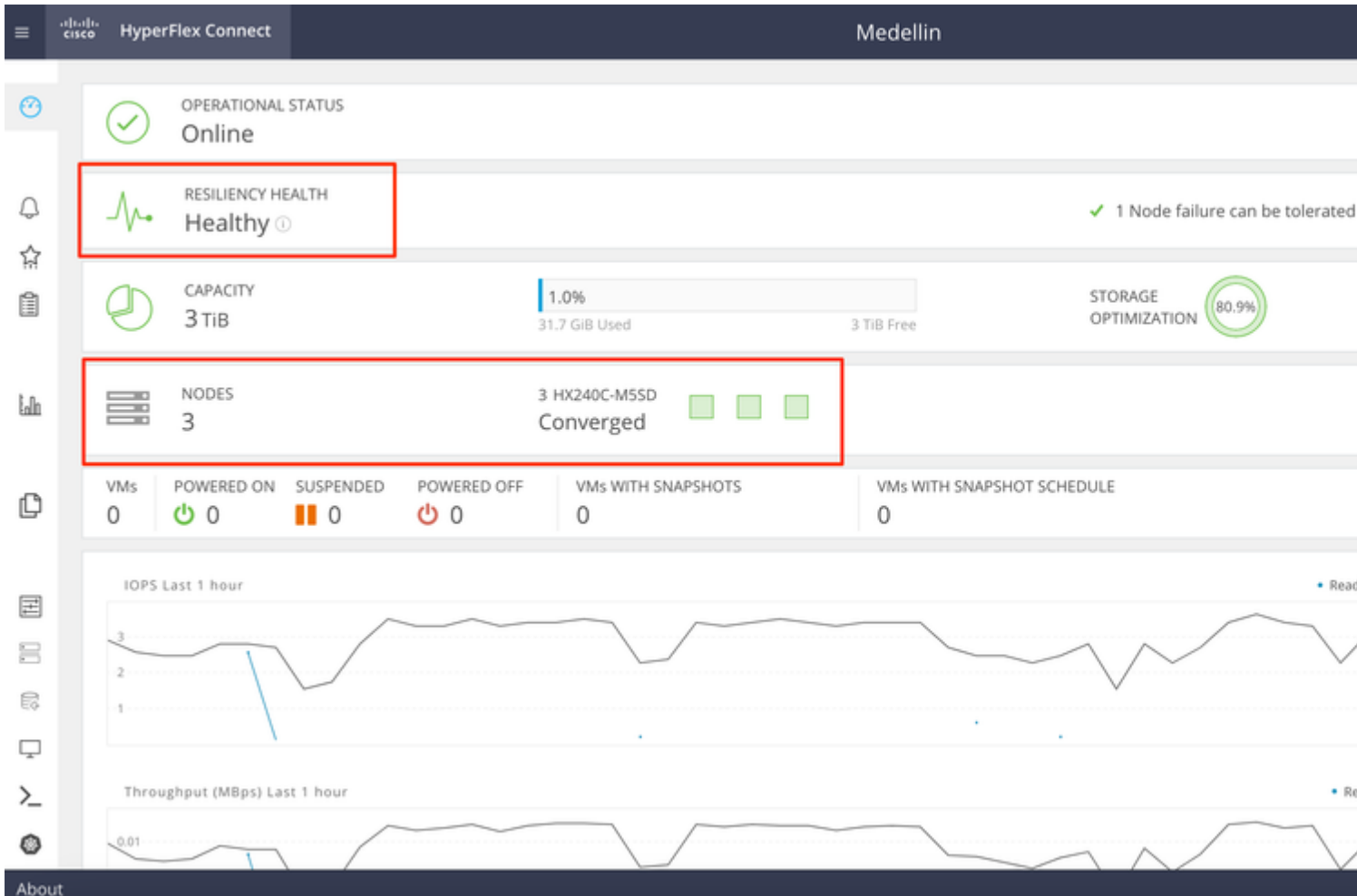
Nodes

3 items found 10 per page 1 of 1

Add Filter

Name Health Host Status Type

New Command Palette



Validation from CLI

From CLI you can use commands such as: **hxcli cluster status** , **hxcli cluster info**, **hxcli cluster health**, **hxcli node list**

```
<#root>
```

```
hxshell:~$
```

```
hxcli cluster status
```

```
Cluster UUID : 6104001978967674717:7117835385033814973  
Cluster Ready : Yes
```

```
Resiliency Health : HEALTHY
```

```
Operational Status : ONLINE
```

```
ZK Quorum Status : ONLINE  
ZK Node Failures Tolerable : 1
```

```
<#root>
```

hxshell:~\$

hxcli cluster info

Cluster Name : Medellin
Cluster UUID : 6104001978967674717:7117835385033814973
Cluster State : ONLINE
Cluster Access Policy : Lenient
Space Status : NORMAL
Raw Capacity : 9.8 TiB
Total Capacity : 3.0 TiB
Used Capacity : 31.7 GiB
Free Capacity : 3.0 TiB
Compression Savings : 80.90%
Deduplication Savings : 0.00%
Total Savings : 80.90%
of Nodes Configured : 3
of Nodes Online : 3
Data IP Address : 169.254.218.1

Resiliency Health : HEALTHY

Policy Compliance : COMPLIANT

Data Replication Factor : 3 Copies
of node failures tolerable : 1
of persistent device failures tolerable : 2
of cache device failures tolerable : 2
Zone Type : Unknown
All Flash : No

Related Information

[HyperFlex Node Redeployment Workflow](#)