



## Cisco HX Release 6.0(x) - Software Requirements

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## Cisco HX Data Platform Compatibility and Scalability Details - 6.0(x) Releases

### Cluster Limits

- Cisco HX Data Platform supports up to 100 clusters managed per vCenter as per [VMware configuration maximums](#).
- Cisco HX Data Platform supports any number of clusters on a single FI domain. Each HX converged node must be directly connected to a dedicated FI port on fabric A and fabric B without the use of a FEX. C-series compute only nodes must also directly connect to both FIs. B-series compute only nodes will connect through a chassis I/O module to both fabrics. In the end, the number of physical ports on the FI will dictate the maximum cluster size and maximum number of individual clusters supported in a UCS domain.
- Using a FEX on uplink ports connecting the Fabric Interconnects to the top of rack (ToR) switches is not supported due to the possibility of network oversubscription leading to the inability to handle HyperFlex storage traffic during failure scenarios.

The following tables provide Cisco HX Data Platform Compatibility and Scalability Details.

Table 1: Cisco HX Data Platform Storage Cluster Specifications for VMware ESXi

Node	VMware ESXi				Stretched Cluster* (Available on ESX Only)		
Deployment Type	FI-Connected		Edge	DC-No-FI	FI-Connected		
<b>HX Servers (Intel and AMD Servers)</b>	HXAF245C-M6SX	HX240C-M6L	HXAF245-M6SX Edge HXAF240C M5 Edge Short Depth HXAF240C M5 Edge Full Depth HXAF240 M6SX Edge HXAF225-M6SX Edge HXAF220C M5 Edge HXAF220 M6S Edge HX245-M6SX Edge HX240C M5 Edge Short Depth HX240C M5 Edge Full Depth HX240 M6SX Edge HX225-M6SX Edge HX220C M5 Edge HX220 M6S Edge	HXAF245C-M6SX	HXAF245C-M6SX	HX240C-M6L	
	HXAF240C-M6SX	HX240C-M5L		HXAF240C-M6SX	HXAF240C-M6SX	HX240C-M5L	
	HXAF240C-M6SN			HXAF240C-M6SN	HXAF240C-M6SN	HXAF240C-M6SN	
	HXAF240C-M5SX			HXAF240C-M5SX	HXAF240C-M5SX	HXAF240C-M5SX	
	HXAF240C-M5SN			HXAF240C-M5	HXAF240C-M5	HXAF240C-M5	
	HXAF240C-M5			HXAF225C-M6S	HXAF225C-M6S	HXAF225C-M6S	
	HXAF225C-M6S			HXAF220C-M6SN	HXAF220C-M6SN	HXAF220C-M6SN	
	HXAF220C-M6SN			HXAF220C-M6S	HXAF220C-M6S	HXAF220C-M6S	
	HXAF220C-M6S			HXAF220C-M5SN	HXAF220C-M5SN	HXAF220C-M5SN	
	HXAF220C-M5SN			HX245C-M6SX	HXAF220C-M5	HXAF220C-M5	
	HXAF220C-M5			HX240C-M6SX	HX245C-M6SX	HX245C-M6SX	
	HX245C-M6SX			HX240C-M6	HX240C-M6SX	HX240C-M6SX	
	HX240C-M6SX			HX240C-M5	HX240C-M5	HX240C-M5	
	HX240C-M5			HX225C-M6S	HX225C-M6S	HX225C-M6S	
	HX225C-M6S			HX220C-M6S	HX220C-M6S	HX220C-M6S	
	HX220C-M6S			HX220C-M6	HX220C-M6	HX220C-M6	
	HX220C-M5			HX220C-M5	HX220C-M5	HX220C-M5	

<b>Node</b>	<b>VMware ESXi</b>				<b>Stretched Cluster* (Available on ESX Only)</b>	
<b>Deployment Type</b>	<b>FI-Connected</b>		<b>Edge</b>	<b>DC-No-FI</b>	<b>FI-Connected</b>	
<b>Compute-Only UCS Servers</b>	B200 M6 B200 M5 B480 M5 C220 M6/M5 C240 M6/M5 C480 M5 C225 M6 C245 M6	B200 M6 B200 M5 B480 M5 C220 M6/M5 C240 M6/M5 C480 M5	—	C220 M6 C220 M5 C225 M6 C245 M6 C240 M6 C240 M5	B200 M6 B200 M5 B480 M5 C220 M6/M5 C240 M6/M5 C480 M5 C225 M6 C245 M6	B200 M6 B200 M5 B480 M5 C220 M6/M5 C240 M6/M5 C480 M5
<b>Supported Nodes</b>	Converged and Compute-only nodes	Converged and Compute-only nodes	Converged nodes only	Converged and Compute-only nodes	Converged and Compute-only nodes	Converged and Compute-only nodes
<b>HXDCAD Licensed Node Limits</b> <b>1:1 ratio of HXDCAD to Compute only nodes</b> <b>(M1-M2)</b>	Converged nodes: 3-32 Compute only nodes: 0-32 Compute-only nodes: 0-32 All NVMe PIDs require HXDP-DC-PR License	Converged nodes: 3-16 Compute-only nodes: 0-16	M5 Converged nodes: 2, 3, or 4	Converged nodes: 3-12 Compute-only nodes: 0-12 All NVMe PIDs require HXDP-DC-PR License	N/A	N/A

Node	VMware ESXi				Stretched Cluster* (Available on ESX Only)	
Deployment Type	FI-Connected		Edge	DC-No-FI	FI-Connected	
<b>HyperFlex Licensed Node Limits</b> <b>1:2 ratio of HyperFlex to Compute only nodes (M-M)</b>	Converged nodes: 3-32 Compute only nodes: 0-64 (up to max cluster size)	Converged nodes: 3-16 Compute-only nodes: 0-32	M5 Converged nodes: 2, 3, or 4	Converged nodes: 3-12 Compute-only nodes: 0-24 Required for HXAF220c M6SN HXAF240c M6SN HXAF220c M5SN All NVMe PIDs require HXDP-DC-PR License	Converged nodes: 2-16 per Site Compute-only nodes: 0-21 per Site (up to max cluster size) Compute only nodes: 0-64 (up to max cluster size)	Converged nodes: 2-8 per Site Compute-only nodes: 0-16 per Site (up to max cluster size)
<b>Max Cluster Size</b>	96 <sup>1</sup>	48	4 Updated to 4 per input from Shankar Srikanta 5/2/2022 (rickwo)	36	32 per Site/ 64 per cluster	24 per Site/ 48 per cluster
<b>Max Compute to Converged ratio</b>	2:1	2:1	—	2:1	2:1	2:1
<b>Expansion</b>	✓	✓	✓ <sup>2</sup>	✓	✓*	✓*

<sup>1</sup> Cluster sizes above 64 nodes require ESXi 7.0 U1 or later.

<sup>2</sup> Edge cluster expansion with 1G network topology is not supported

## FI/Server Firmware - 6.0(x) Releases

If you are installing new cluster(s), or upgrading existing clusters and require guidance on UCS FI/Server firmware versions, see [Choosing UCS Server Firmware Versions](#).

If you are installing or upgrading HyperFlex clusters with All NVMe nodes, please see the Note below.

Table 2: FI/Server Firmware Versions for M5/M6 Servers

Release	M5 Qualified FI/Server Firmware	M6 Qualified FI/Server Firmware
6.0(1x)	4.2(1n), 4.2(3d), 4.2(3e), 4.2(3g), 4.2(3h), 4.2(3j)	4.2(1n), 4.2(3d), 4.2(3e), 4.2(3g), 4.2(3h), 4.2(3j)

**Important FI/Server Firmware Notes:****Restriction HXAF240-M5 Clusters using Samsung SSDs with 3.8Tb and 7.6Tb capacities:**

Do not install or upgrade to UCS versions 4.2(3) for HXAF240-M5 Clusters using Samsung SSD drives with PID HX-SD76T61X-EV or HX-SD38T61X-EV (UCS-SD76T61X-EV or UCS-SD38T61X-EV). The Highest UCS A/B/C versions used should be 4.2(1n). For more information, see [CSCwf93621](#).

- **Fabric Interconnect 6400:** If your environment (or deployment) is a Fabric Interconnect 6400 connected to VIC 1455/1457 using SFP-H25G-CU3M or SFP-H25G-CU5M cables, only use UCS Release 4.0(4k), or 4.1(2a) and later. Do not use any other UCS version listed in the table of qualified releases. Using a UCS Release that is not UCS Release 4.0(4k), or 4.1(2a) and later may cause cluster outages.

Refer to [Release Notes for UCS Manager, Firmware/Drivers, and Blade BIOS](#) for any UCS issues that may affect your environment.

Use the following upgrade sequence ONLY for Fabric Interconnect 6400 connected to VIC 1455/1457 using SFP-H25G-CU3M or SFP-H25G-CU5M cables:

- Upgrade the UCS server firmware from HX Connect
- Upgrade the UCS Infrastructure
- Upgrade HXDP
- Upgrade ESXi

If you have the described hardware and software combination, the combined upgrade of UCS server firmware is not supported. However, combined upgrade of HXDP and ESXi is supported after UCS server firmware and UCS infrastructure firmware upgrade is completed.

If the current UCS F/W version is later than 4.0(4k) or 4.1(2a), then combined upgrade of UCS server firmware, HX and ESXi is supported.

- **Intersight Edge Servers:** Intersight edge servers running a CIMC version before 4.0(1a), HUU is the suggested mechanism to update the firmware.

**M6 Specific Notes:**

- If you are using PCIE-Offload cards with M6 servers, use server firmware version 4.2(3g) and later.
- HX225 and HX245 M6 AMD nodes require minimum server firmware version 4.2(1n) or later.

**General Notes:**

The HX components—Cisco HX Data Platform Installer, Cisco HX Data Platform, and Cisco UCS firmware—are installed on different servers. Verify that each component on each server used with and within an HX Storage Cluster are compatible.

- Verify that the preconfigured HX servers have the same version of Cisco UCS server firmware installed. If the Cisco UCS Fabric Interconnects (FI) firmware versions are different, see the Cisco HyperFlex Systems Upgrade Guide for steps to align the firmware versions.
  - **M5:** For NEW hybrid or All Flash (Cisco HyperFlex HX220C-M5SX, HX240C-M5SX, HXAF220C-M5SX, HXAF240C-M5SX) deployments, verify that the qualified UCS firmware version is installed.
  - **M6:** For NEW hybrid or All Flash (Cisco HyperFlex HX220C-M6SX, HX240C-M6SX, HXAF220C-M6SX, HXAF240C-M6SX, HXAF225C-M6S, HXAF245C-M6SX, HX225C-M6S, HX245C-M6SX) deployments, verify that Cisco UCS Manager 4.2(1i) or later is installed.
- To reinstall an HX server, download supported and compatible versions of the software. See the [Cisco HyperFlex Systems Installation Guide for VMware ESXi, Release 6.0](#) for the requirements and steps.

## HyperFlex Edge/DC-No-FI and Firmware Compatibility Matrix for 6.0(x) Deployments

### Cisco HX Data Platform, Release 6.0(x) based Deployments

Confirm the M5/M6 component firmware on the server meets the minimum versions listed in the following table.

*Table 3: M5 and M6*

Component	Qualified Firmware Version - HXDP 6.0(x) <b>*Review all notes at the beginning of this section.</b>
Host Upgrade Utility (HUU) Version	4.2(1n), 4.2(2g), 4.2(3d), 4.2(3e), 4.2(3g), and 4.2(3j)  <a href="#">Download Software for 220</a> <a href="#">Download Software for 240</a> Then click on the UCS Server Firmware link to download the desired HUU version.
<b>Note</b>	All NVMe nodes are not supported for HX edge deployments.



**Note** HX Edge M6 nodes require minimum server firmware version 4.2(1i) or later

## Software Requirements for VMware ESXi - 6.0(x) Releases

The software requirements include verification that you are using compatible versions of Cisco HyperFlex Systems (HX) components and VMware vSphere, VMware vCenter, and VMware ESXi.

- Verify that all HX servers have a compatible version of vSphere preinstalled.
- Verify that the vCenter version is the same or later than the ESXi version.
- Clusters running ESXi version 7.0 U2 and earlier, need to perform a combined upgrade to HXDP 6.0(1a) with ESXi 7.0 U3 or later.
- Verify that the vCenter and ESXi versions are compatible by consulting the [VMware Product Interoperability Matrix](#). Newer vCenter versions may be used with older ESXi versions, provided both ESXi and vCenter are listed as supported in the software requirements tables in this section.
- Verify that you have a vCenter administrator account with root-level privileges and the associated password.

The following tables apply to VMware vSphere Editions: Enterprise, Enterprise Plus, Standard, Essentials Plus, ROBO. All other licensed editions of VMware, including the Essentials Edition are not supported.

**Table 4: Software Requirements for VMware ESXi**

Version	VMware ESXi Versions for M5 Servers	VMware ESXi Versions for M6 Servers
6.0(1b)	7.0 U3, 8.0 U1, 8.0 U2	7.0 U3, 8.0 U1, 8.0 U2
6.0(1a)	7.0 U3, 8.0 U1, 8.0 U2	7.0 U3, 8.0 U1, 8.0 U2

**Table 5: Software Requirements for VMware vCenter**

Version	VMware vCenter Versions for M5 Servers	VMware vCenter Versions for M6 Servers
6.0(1b)	7.0 U3, 8.0 U1, 8.0 U2	7.0 U3, 8.0 U1, 8.0 U2
6.0(1a)	7.0 U3, 8.0 U1, 8.0 U2	7.0 U3, 8.0 U1, 8.0 U2

## HX Data Platform Software Versions for HyperFlex Witness Node for Stretch Cluster - 6.0(x) Releases

New Stretch Clusters installed using HXDP 6.0(1a) will auto-configure an Invisible Cloud Witness for site arbitration. Invisible Cloud Witness automatically runs the latest version, user maintenance of this component is not required. Stretch Clusters upgraded from previous HX releases, will continue to work with existing 3rd site witness VM.



**Note** Stretch Clusters upgraded from previous HXDP Releases (HXDP Release 5.0(x) and earlier), will continue to work with existing 3rd site witness as described in the [Cisco HyperFlex Systems Stretch Cluster Guide, Release 5.0](#) and the [Cisco HyperFlex Systems Upgrade Guide for VMware ESXi, Release 5.0](#). The following table provides the latest supported witness VM version.

#### HXDP Software Versions for Legacy HyperFlex Witness for Stretch Cluster HXDP 5.0(x) and earlier

- Witness Node Version : 1.1.3



**Note** Older versions of witness VMs are supported when the cluster is upgraded to the latest HXDP version.

## Browser Recommendations - 6.0(x) Releases

Use one of the following browsers to run the listed HyperFlex components. These browsers have been tested and approved. Other browsers might work, but full functionality has not been tested and confirmed.

**Table 6: Supported Browsers**

Browser	Cisco Intersight	Cisco UCS Manager	HX Data Platform Installer	HX Connect
Microsoft Internet Explorer	NA	11 or later	11 or later	11 or later
Google Chrome	62 or later	57 or later	70 or later	70 or later
Mozilla Firefox	57 or later	45 or later	60 or later	60 or later
Apple Safari	10 or later	9 or later	NA	NA
Opera	NA	35 or later	NA	NA

#### Notes

- **Cisco HyperFlex Connect:**

The minimum recommended resolution is 1024 X 768.

- **VMware local plugin architecture:** Support is limited to vSphere versions 6.5, 6.7, and 7.0. For more information, see the *vSphere Client Local plugins are deprecated (87880)* article on the VMware site.

- **Cisco UCS Manager:**

The browser must support the following:

- Java Runtime Environment 1.6 or later.



- Adobe Flash Player 10 or later is required for some features.

For the latest browser information, see the Cisco UCS Manager Getting Started Guide for your deployment [Cisco UCS Manager Getting Started Guide](#).

