

VMware HCX 4.5 Release Notes

VMware HCX 4.5

You can find the most up-to-date technical documentation on the VMware website at:

<https://docs.vmware.com/>

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Introduction

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VMware HCX 4.5 | 13 OCT 2022 | Build 20616025 (Connector), 20616027 (Cloud)

Check for additions and updates to these release notes.

About VMware HCX

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VMware HCX delivers secure and seamless application mobility and infrastructure hybridity across both on-premises and in the cloud. HCX abstracts the distinct private or public vSphere resources and presents a Service Mesh as an end-to-end entity. HCX Interconnect can then provide high-performance, secure, and optimized multi-site connectivity to achieve infrastructure hybridity and present multiple options for bi-directional virtual machine mobility with technologies that facilitate the modernization of legacy data centers.

For more information, see the [VMware HCX User Guide](#) in the VMware Documentation Center.

System Requirements and Compatibility

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For HCX deployment requirements, see [Preparing for HCX Installation](#).

The following resources provide information related to HCX deployments:

- For information regarding VMware product compatibility by version, see [Product Interoperability Matrix](#).
- For appliance limit information, see [VMware Configurations Maximums](#).
- For more information on where you can view port and protocol information for various VMware products in a single dashboard and to export an offline copy of the selected data, see [VMware Ports and Protocols](#).
- For information about General Availability (GA), End of Support (EoS), End of Technical Guidance (EoTG) for VMware software, see [VMware Product Lifecycle Matrix](#).

Early Adoption Features

Early Adoption (EA) denotes an initial release phase of a critical service feature with limited field exposure. While the feature has completed its entire development cycle and it is fully supported in production, due to strong dependencies on the deployment environment, thorough validation and qualification is recommended before activating it.

Installation and Upgrade

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Installing HCX 4.5.0

For sample installation workflows by deployment type, see [Installing the HCX Manager Appliance](#).

Upgrading to HCX 4.5

- **Requirements:**
 - Upgrading to HCX 4.5.0 from HCX 4.2 and above is supported.
 - Upgrading to HCX 4.5.0 from all versions less than 4.2 requires a full upgrade to 4.3.3 first.
 - All site paired systems must be upgraded.
 - All Service Mesh appliances must be upgraded to 4.5.
 - Upgrade snapshots:
 - During upgrades to HCX 4.5, HCX Manager snapshots are taken automatically.
 - Upgrade snapshots are only taken when an HCX Manager is deployed on the same vCenter Server registered to it. For other deployments, manual snapshots can be taken.
 - HCX retains automatic snapshots for 24 hours before deleting them.
- Note:** To restore the HCX Manager from a snapshot, contact VMware Support.
- VMware sends administrative messages to HCX systems that are running out of support and require upgrade.
 - Upgrade compatibility information is available as a table in [VMware Product Interoperability Matrix - Upgrade Path](#).

Important HCX 4.5 introduces new security requirements for OS Assisted Migration (OSAM). If you have OSAM running in your environment, you must upgrade HCX Connector, HCX Cloud Manager, and the HCX OSAM data plane appliances (Sentinel Gateway, Sentinel Data Receiver) to HCX 4.5. Additionally, you must upgrade Sentinel agents running on the source workload to HCX 4.5. If all appliances are not upgraded to 4.5, migrations can stall and must be started again after upgrade.

What's New

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VMware HCX 4.5.0 is a minor release that provides new features, improved platform security, compatibility updates and resolved issues.

Workload Migration for NSX V2T with Migration Coordinator

- HCX 4.5 introduces a new migration service: **Workload Migration for NSX V2T**, this new service combines the wave orchestration and operational capabilities of HCX with the performance and concurrency characteristics of **HCX Assisted vMotion** to expedite virtual machine migration. For more information, refer to [Understanding Workload Migration for NSX V2T](#).

HCX Integration with NSX Migration Coordinator for V2T Migration (Single vCenter Server)

- HCX Workload Migration for NSX V2T integrates with NSX Migration Coordinator to seamlessly migrate virtual machines and correctly maintain their security state. This integration is applicable when running User Defined Topology Configuration and Edge Migration mode from an 'NSX for vSphere' cluster to an NSX-T cluster.

HCX Workload Migration for NSX V2T leverages bridging created by NSX Migration Coordinator for virtual machine connectivity on the logical segment during the transition from NSX for vSphere.

This new functionality requires NSX-T Migration Coordinator 4.0.1.1.

With release, V2T Migration is available only in a single vCenter Server deployment.

HCX Bulk Migration for Single vCenter Server Topologies

- In HCX 4.5, HCX can be deployed within a single vCenter Server to enable the Bulk migration. This is useful for cluster-to-cluster migrations in environments where the vendor compatibility or other requirements for cluster-to-cluster vMotion cannot be satisfied.

Interoperability with VMware vSphere 8

- HCX is now compatible with VMware vSphere 8.0. HCX 4.5 enables workload migration to and from vSphere 8-based public clouds and bundled offerings. The following capabilities have been added:
 - Migration of Virtual Machines running in compatibility version 20 (VM Hardware Version 20).

- VSAN 8 as a migration & services deployment datastore.

Note HCX 4.5 is not compatible with vSAN 8 Express Storage Architecture (ESA). ESA support is planned for an upcoming release.

- Network Extension and services deployment using vSphere Distributed Switch version 8.

Note: Migration to vSphere 8 requires NSX 4.0.1.1 or later.

Network Extension Enhancements

■ Mobility Optimized Networking for Virtual Machines with Multiple IP Addresses

HCX Mobility Optimized Networking (MON) now supports virtual machines (VMs) with multiple IP addresses and multiple vNICs. Extended networks that have MON enabled display the list of member VMs on the extended network and the VM IP addresses. Some member VMs can have multiple Network Interface Cards (NICs) connected to different networks. With this release, HCX displays all IP addresses for member VMs with multiple NICs within the stretched subnet. For additional configuration information, see [Configuring HCX Mobility Optimized Networking](#).

Name	IP Addresses	VM Location	Router Location	Status
vm-1	172.16.128.3	w3-rdops-vm02-dhcp-98-250.en g.vmware.com (ntsk.jp0.170.98.250)	MON w3-rdops-vm02-dhcp-98-250. eng.vmware.com (ntsk.jp0.170.98.250)	🟢
IP Addresses		Mobility Optimized Networking Options		
172.16.128.3		Target Router Location	Select...	
172.16.128.5				

Migration Enhancements

■ Seed Checkpoint for Replication Assisted vMotion

HCX virtual machine migration options now includes seed checkpointing support for Replication Assisted vMotion migrations. In the event that a migration is unsuccessful or canceled, Seed Checkpoint retains the target disks created at the target site. See [Additional Migration Settings](#).

■ Seed Checkpoint Automation using PowerCLI and HCX API

Using the HCX UI, configuring Seed Checkpoint is on a per VM basis. With this release, you can automate selection of the Seed Checkpoint option for migration waves using PowerCLI cmdlets or HCX API calls.

■ OS Assisted Migration Guest OS Enhancements

OSAM now supports migration of the following operating systems:

- RHEL 8.5 & 8.6 (64-bit) on KVM
- RHEL 8.5 & 8.6 (BIOS/GEN-1 & UEFI/GEN-2) on Hyper-V

For a detailed list of OSAM supported operating systems, see [Supported Guest Operating Systems](#).

HCX for VMware Cloud on AWS

- **Interoperability with VMware Cloud on AWS**

HCX 4.5.0 includes interoperability with VMware Cloud on AWS 1.20. For more information about supported versions, see [Preparing for HCX Installations](#) and [VMware Product Interoperability Matrix](#).

- **Deployment Details added to HCX for VMware Cloud on AWS**

While deploying or undeploying HCX from the VMware on AWS console, you can click the View Details button to see the associated deployment operations and status. For more information, see [Deploying HCX from the VMware Cloud on AWS Console](#).

Operation	Task Status
✓ Initializing Hcx	COMPLETED
✓ Downloading Hcx Ova	COMPLETED
✓ Deploying Hcx	COMPLETED
○ Configuring Hcx	IN_PROGRESS

Usability Enhancements

- **Network Inventory Cache for Enhanced Performance with Large Network Inventory**

In this HCX release, network inventory optimizations have been introduced allowing internal database operations that on tens of thousands of records to complete in seconds, greatly speeding up the time to display large source or destination network inventories during network extension and migration operations.

- **Filter Migration Management Dashboard Events using Migration ID**

When managing a large number of migrations, it is often helpful to find specific VMs using a Search capability on the HCX Migration Management dashboard. This release includes the option to search for individual migration events in the Migration Management dashboard based on the Migration ID or Migration Group ID.

- **Diagnostics Test for Underlay Management Port**

This release introduces diagnostics test to check the reachability of the Underlay Management port over TCP 9555, which collects underlay statistics over the HCX Management network. You can view the status and run diagnostics on the appliances that comprise the HCX Service Mesh by selecting the appliances you want to test from **Service Mesh > View Appliances**.

You can run the test to check the connection status after making changes to the environment. In the case of a test failure, results include a topology diagram identifying where in the topology the failure was detected, along with a report providing information about the failure.

Note The Underlay Management port 9555 must be allowed in firewall rules, if any.

- **Force Clean-up for Failed or Canceled Migrations at Source and Destination Sites**

With this release, the **Force Clean-up** operation seamlessly works to clean up both the source site and the destination site for a failed or canceled migration.

- **Task Notifications for Service Mesh Appliance Operations**

You can view the task associated with HCX Service Mesh operations in **Service Mesh > View Appliances > Tasks**. The user interface has been updated to identify tasks that have completed successfully, but contain warnings. This is denoted by using an amber colored progress bar and a triangular warning icon.

Operation	Progress	Start Time - End Time	Task De
▼ ⚠ SM-NSXT - Redeploy HA Group	<div style="width: 100%; height: 10px; background-color: yellow;"></div>	8/9/22, 7:37 PM 8/9/22, 7:50 PM	HA operat
✓ Backing up appliance config	<div style="width: 100%; height: 10px; background-color: green;"></div>	8/9/22, 7:37 PM 8/9/22, 7:37 PM	[d564996 backup is

- **Network Extension High Availability Group Redeployment**

The UI for redeploying HCX Appliances has been enhanced to include a specific option for High Availability groups. These enhancements highlight the HA group members affected by the redeploy operation, and clarify which deployment option is appropriate for Network Extension High Availability Groups. Default deployment options are selected based on the appliance.

Redeploy Appliance

Peer appliance(s) will be redeployed. All HA Group members will be redeployed.

Appliance	Standard ⓘ	In-Service ⓘ	High Availability ⓘ	Force ⓘ
SM-NSXT-IX-11	<input checked="" type="radio"/>	Not Applicable ⓘ	Not Applicable ⓘ	<input type="checkbox"/>
SM-NSXT-HAGrp-1 HA Member Appliances: SM-NSXT-NE-11 ACTIVE SM-NSXT-NE-11 STANDBY	Not Applicable ⓘ	Not Applicable ⓘ	<input checked="" type="radio"/>	<input type="checkbox"/>
SM-NSXT-NE-12	<input checked="" type="radio"/>	<input type="radio"/>	Not Applicable ⓘ	<input type="checkbox"/>
SM-NSXT-NE-13	<input checked="" type="radio"/>	<input type="radio"/>	Not Applicable ⓘ	<input type="checkbox"/>

Resolved Issues

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Resolved Migration Issues

- PR/2919759 - After initiating validation for a batch of migrations, migration validation can fail due to timeout limit being crossed (120 seconds). Also, in some cases, after scheduling and starting a group migration, the Migration Wizard stays at the initiating stage and does not close.
- PR/2985131 - Using Seed Checkpoint, re-initiating a failed/cancelled migration for a VM for which base synchronization is completed, can falsely report during migration validation that there is not enough space on the target disk.
- PR/2988725 - If Bulk migration fails during switchover due to space constraints on the target datastore, a Force Cleanup operation on can fail with the message, "Replica group deletion failed."
- PR/2995647 - Using Seed Checkpoint, re-initiating a failed/cancelled migration for a VM for which base synchronization is completed, can report a false Mobility Event on the UI stating "Creating disks on target datastore" which can imply that new disks are being created. However, in this case, existing disks are being re-used on the target side.
- PR/3005276 - HCX vMotion, RAV, or Cold migration to an NSX-T configured environment can fail with the message, "Invalid value for field "pnicZone": array contains null at index 0."
- PR/3035566 - Retrying RAV or bulk migration of a VM with long recovery option set may fail with java.lang.NullPointerException: null.
- PR/3037915 - HCX RAV migration of a VM with VirtualPCNet32 network adapter leads to mac address conflict error on the migrated VM.
- PR/3042593 - HCX vMotion or Cold migration of a VM with delta disks can fail migration with message, "The specified delta disk format 'redoLogFormat' is not supported."

Resolved Network Extension Issues

- PR/2982680 - Following an HCX HA Network Extension failover, the active Network Extension appliance does not show the extended networks.
- PR/2996454 - HCX Network Extension service does not detect and prevent extension for Port Groups configured with Ephemeral binding.
- PR/3022808 - HCX HA Network Extensions fail to redeploy with a certificate error.

- PR/3022846 - After resyncing MTU and network configuration changes for a Service Mesh, Network Extension HA redeploy gets stuck and does not complete.
- PR/3030934 - If an HA Pair is stuck in an inconsistent state, the Network Extension HA management actions like Manual Failover, Force sync, and Update Appliances are grayed out on HA management wizard. However, users can use Recover action to return the HA Pair to a healthy state.

Resolved Interconnect Issues

- PR/3015315 - When redeploying HCX Interconnect appliances, the WAN Optimization tunnels never return to UP state.

Resolved Management Issues

- PR/2932705 - Force redeploying an HCX appliance whose redeployment failed previously, results in an error indicating that another workflow is already in progress.
- PR/2997323 - In Transport Analytics, the system runs on demand Uplink tests in parallel on a shared uplink when only one test should get executed on an uplink.
- PR/3008124 - Restarting HCX manager app engine when an NSX inventory sync is happening can result in inconsistency of HCX operations.
- PR/3008444 - When latency and lossRate values are null from Data plane, the uplink metrics on the Transport Analytics page do not display this data.
- PR/3011874 - Migration might fail because the upgraded IX VM has a new MAC address that is not learnt by the Default Gateway.
- PR/3016443 - The “Test Service Mesh Uplinks” feature may give incorrect results due to incorrectly parsing the first second of the iperf3 run as opposed to the overall results.
- PR/3018682 - Apache httpd process can run out of disk space due to a logging issue, and further operations, such as VM guest customization during vSR Bulk Migration can fail.
- PR/3023460 - In environments where HCX for VMware Cloud on AWS is deployed at both the source and destination sites, upgrades can hang.
- PR/3026765 - HCX Service Mesh deployment fails when the management network is not explicitly associated with the transport zone
- PR/3027665 -HCX Service Mesh deployment fails when the management network is not explicitly associated with the transport zone.
- PR/3028239 - HCX Service Mesh fails to deploy with the message, “Failed to get opaque network details or CVDS dvpg from DB for network name <network>.”
- PR/3029847 - On restart of the **app-engine service** it gets stuck in activating state.
- PR/3036003 - System issues cause high CPU and Kafka utilization.
- PR/3038610 - After upgrading HCX, the upgrade or redeploy of the HCX Interconnect (IX) appliance fails intermittently.

- PR/3040649 - System issues cause high disk utilization under /common/kafka-db.

Security Issues

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- This release includes important security enhancements and updates.

Product Support Notices



Non-compatibility with VSAN 8 ESA

- Currently available HCX releases are not compatible with VSAN 8 Express Storage Architecture (ESA). Interoperability with VSAN 8 ESA is planned for an upcoming release.

Non-compatibility of HCX MON with Onprem Gateway using first hop redundancy protocols (HSRP/VRRP)

- This HCX release is not compatible with Onprem Gateway/Router using FHRP when using MON (Mobility Optimized Networking). Interoperability of MON with Onprem Gateway/Router using FHRP is planned for an upcoming release. Refer to VMware Knowledge Base [85849](#) for more information.

About NSX for vSphere systems in Extended Support

- NSX for vSphere General Support ended on January 16, 2022.
- NSX for vSphere systems in Technical Guidance (under Extended Support contracts) are only supported at the evacuation site (source), with HCX Connector.
- To determine the HCX Connector version for evacuation, refer to VMware KB articles [82702](#) and [71398](#).

Note that HCX Cloud installations require current (Generally Available) VMware software components. NSX for vSphere is not suitable or supported for HCX Cloud installations.