Cisco HyperFlex Upgrade Guide for Microsoft Hyper-V, Release 5.0

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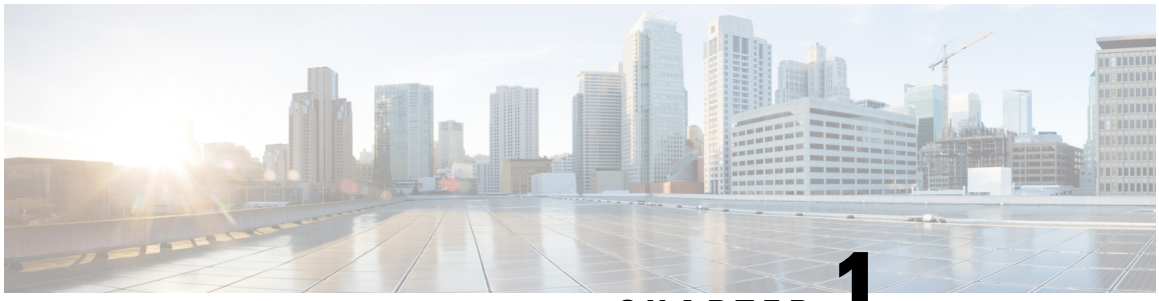


CHAPTER 1

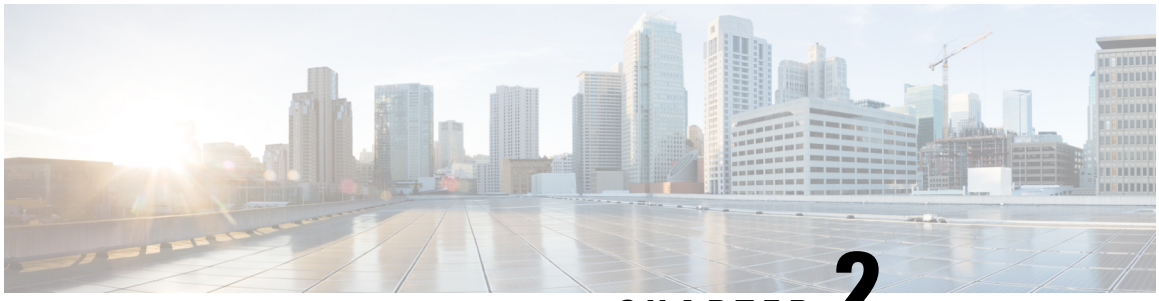
Overview

Overview

Cisco HX Data Platform upgrade for clusters running on Microsoft Hyper-V is completed one node at a time in HX Connect UI. The following table provides a summary of the automated steps that DO NOT require manual intervention.

#	Step	Result
1	Pre-upgrade validations	• Windows Failover Cluster is configured. • All non-clustered VMs are powered off. These VMs are either shutdown or manually migrated to another node. • HX Cluster is healthy. Run the Hypercheck: HyperFlex Health & Pre-upgrade Check Tool - HyperV • Live migration is configured.
2	Enter HX Connect Maintenance Mode	• Pause the Failover Cluster node that in addition triggers Live migration of clustered VMs. • Stop the storfs service on the controller VM.
3	Upgrade	• Upgrade storfs packages in the controller VM. • Reboot the controller VM.
4	Exit Maintenance Mode	• Start the storfs service on the controller VM. • Resume Failover Cluster Node that will trigger failback for the clustered VMs in Step #2.

Overview



CHAPTER 2

Pre-Upgrade Procedures

Test Upgrade Eligibility

Beginning with Cisco HyperFlex Release 4.0(2a), the Upgrade page displays the last cluster upgrade eligibility test result and last tested version of UCS server, HX data platform, and/or ESXi.

Before upgrading the HyperFlex Data Platform, perform upgrade eligibility test in the Upgrade page to validate and check the cluster readiness and the infrastructure compatibility for an upgrade.

To perform upgrade eligibility test:

1. Select **Upgrade** > **Test Upgrade Eligibility**.
2. Select the **HX Data Platform** check box to test upgrade eligibility of HyperFlex Data Platform.

   Upload the Cisco HyperFlex Data Platform Upgrade Bundle that need to be validated before upgrade.
3. Click **Validate**.

   The progress of the upgrade eligibility test is displayed.

Hypercheck: HyperFlex and Pre-Upgrade Check Tool - Hyper-V

The Hypercheck : Hyperflex Health & Pre-Upgrade Check Tool - HyperV are automated health and pre-upgrade checks that are designed to ensure your clusters are healthy before you upgrade. It is imperative that this health check is not just performed, but that you take corrective action on any cluster that is found to be unhealthy. Correct all issues reported by the Hypercheck health check before continuing.

Hypercheck : HyperFlex Health & Pre-Upgrade Check Tool - HyperV (HyperFlex Releases 3.5 and later) https://www.cisco.com/c/en/us/support/docs/hyperconverged-infrastructure/hyperflex-hx-data-platform/216027-hypercheck-hyperflex-health-pre-upgr.html

Upgrade Recommendations

For upgrading supported releases, see the Recommended Cisco HyperFlex HX Data Platform Software Releases - for Cisco HyperFlex HX-Series Systems.

If you want to upgrade from a release that is no longer supported, see the Cisco HyperFlex Systems Upgrade Guide for Unsupported Cisco HX Releases.

Bootstrap Process

Bootstrap process enables you to upgrade Cisco HX Data Platform.

Important This procedure is required if you are upgrading from HXDP release 3.0(1x) to 3.5(1a) and later.

Step 1 SSH to the cluster management IP address with *root* privileges.

Step 2 Transfer the latest HX Data Platform upgrade bundle to the controller VM's /tmp directory. Depending on your operating system, use you can either use SCP directly or download third-party tools, such as WinSCP or MobaXterm.

Step 3 From the controller VM shell, change to the /tmp directory

Caution Do not use any folder other than /tmp and do not create any subfolders.

Step 4 Un-compress the package using tar **`-zxvf <storfs package name>.tgz`**.

```
tar -zxvf storfs-packages-3.0.1a-26263.tgz
```

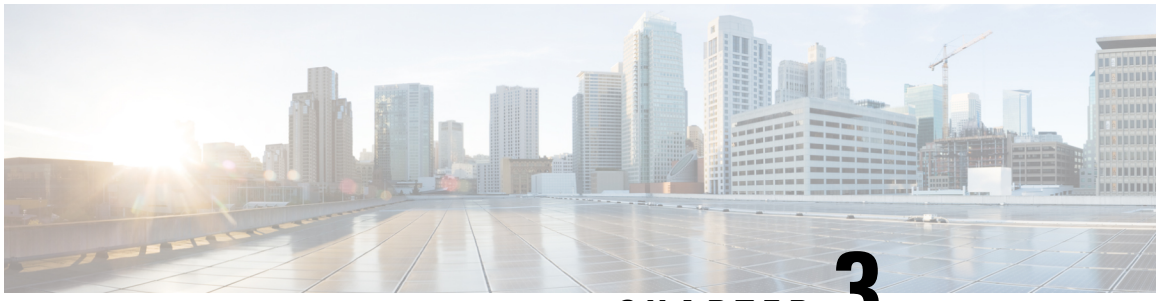
This un-compresses and extracts all files to the root of the **`/tmp`** folder.

Step 5 Invoke the cluster-bootstrap.sh script to bootstrap packages for upgrade. Execute the following command:

```
~# ./cluster-bootstrap.sh
```

Important Wait for the system management service to restart and the bootstrap process to complete.

Step 6 Log out from the cluster management IP controller VM.



CHAPTER 3

Upgrading Cisco HX Data Platform using HX Connect

Upgrading Cisco HX Data Platform using HX Connect UI

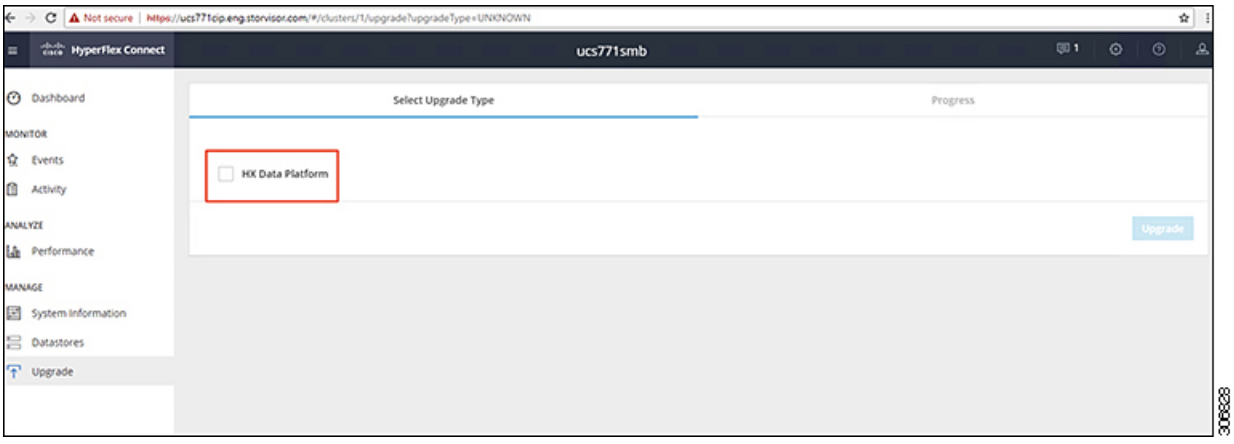
Step 1 Log into HX Connect.

a) Enter the HX Storage Cluster management IP address in a browser. Navigate to *https://<storage-cluster-management-ip>*.

b) Enter the administrative username and password.

c) Click **Login**.

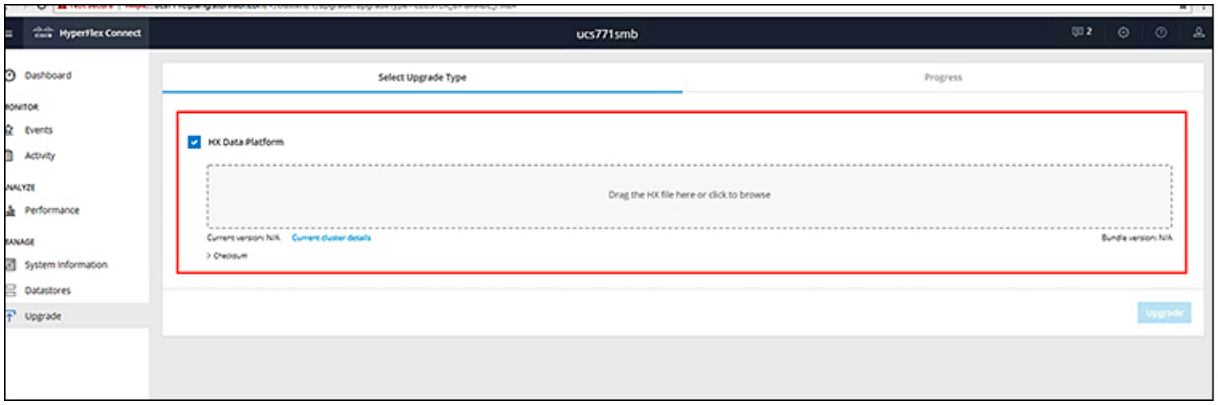
Step 2 On the **Select Upgrade Type** page, select the **HX Data Platform** check box.



Step 3 In the **Drag the HX file here or click to browse** area, upload the latest *Cisco HyperFlex Data Platform Upgrade Bundle for upgrading existing clusters with previous release.tgz* package file from Software Download - HyperFlex HX Data Platform.

For example:

storfs-packages-4.0.2c-35590.tgz



Step 4 Click **Upgrade**.

Step 5 The **Validation Screen** on the **Upgrade Progress** page displays the progress of the checks performed. Fix validation errors, if any. Confirm that the upgrade is complete.

Note As of HX 5.0(1b), an upgrade status appears providing the result of the last upgrade along with the versions that were upgraded (source and target versions for each component selected in the upgrade). You can dismiss this status only if it is successful. If the last upgrade fails, you will need to fix the issue. This banner is a reminder to take action to correct the upgrade.

Upgrading UCS Firmware

After you have successfully upgraded the **Cisco HX Data Platform**, change the UCS host firmware policy accordingly with the recommended UCS firmware. For more information, see the HyperFlex release notes.

CHAPTER 4

Troubleshooting Information

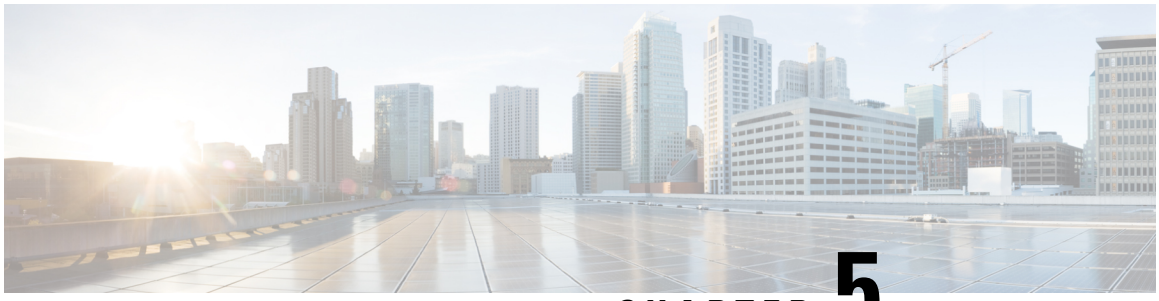
Troubleshooting Information

Symptom	Resolution
Validation fails when the non-clustered VMs are running on the Hyper-V host that is being placed in HX Maintenance Mode.	Power off the non-clustered VMs or manually migrate them to another node.
VM Live migration can fail while pausing the Failover cluster node.	This can be due to several underlying issues related to resources on the Windows host or networking failure between the nodes within the failover cluster. Check the Failover cluster event log to debug the issue. Retry placing the node in HX Maintenance Mode after resolving these issues.
When the cluster is configured with rf=2 + strict access policy, the cluster resiliency state remains in warning state and the online upgrade fails due to the resiliency state.	Change strict mode to lenient mode temporarily before upgrading and then change back after the upgrade is complete: `sysmtool --ns cluster --cmd accesspolicy --accesspolicy=lenient`
Option to upgrade UCS does not appear in HX Connect.	Verify that all backend services are up and running: 1. Verify that stNodeMgr is running on Hyper-V clusters. 2. Verify that stUpgradeSvc is running on Hyper-V clusters. 3. If any of the services are stopped, start them by running start <service-name>, where <service-name> is stNodeMgr or stMgr or stUpgradeSvc.

Symptom	Resolution

During UCS Server Firmware Upgrade, when the node that is not part of the Fail Over Cluster (FOC) being used, then upgrade fails with `Pause HyperV Host: Suspend-ClusterNode -Drain. An error occurred pausing node 'node not in FOC'.`	Remove one of the FOCs from the node which shows as failed WFC and make sure that the working FOC has all the nodes of the cluster.
	Perform the following on all stCtlVms of every node:
	`Run`
	`1) /bin/hxdpservices stop`
	`2) /bin/hxdpservices start`
	`Wait for 5 minutes`
	`Start UCS Server Firmware upgrade again`

Upgrade process already in progress even after failure in a Hyper-V setup.	`Fetching upgrade status from ZK("i32":1)`
	`[zk: localhost:2181(CONNECTED) 0] get /hxUpgrade/clusterUpgradeStatus /2802157519622062146:7345585794604318257 {"1":{"rec":{"1":{"str":"2802157519622062146:7345585794604318257"}, "2":{"i32":4},"3":{"str":"ucs1796smb"}}}, "2":{"i32":1},"4": {"str":"5.0.2a-41393"}}`
	`Updating upgrade status in ZK. ("i32":0)`
	`[zk: localhost:2181(CONNECTED) 3] set /hxUpgrade/clusterUpgradeStatus/ 2802157519622062146: 7345585794604318257 '{"1":{"rec": {"1":{"str":"2802157519622062146:7 345585794604318257"}, "2":{"i32":4},"3":{"str":"ucs1796smb"}}},"2":{"i32":0},"4": {"str":"5.0.2a-41393"}}'-`



CHAPTER 5

Applying Windows Patches

Applying Windows Patch Updates

Windows Service Pack updates should be completed on one Hyper-V Server at a time to prevent the HyperFlex cluster from experiencing an outage. Multiple Hyper-V hosts booting at the same will cause their associated controller VMs to be offline and a HyperFlex cluster with 5 or more nodes can only tolerate 2 controller VMs being offline at the same time.

Note Clusters comprised of 3 or 4 nodes can only tolerate one node to be down at a time.

Perform the following procedure for updating Windows Service Pack that includes cluster health checks.

Step 1 Log into a controller VM to verify that the cluster is healthy. Check for **The Resiliency Health** and "**# of node failures tolerable**" lines. Make a note of how many node failures are tolerable by your HX cluster.

Step 2 Run the **hxcli cluster info** command.

```
Sample Output:
Cluster Name : SUP61-SMB
Cluster UUID : 3789536550516014784:5974749742096294602
Cluster State : ONLINE
Cluster Access Policy : Lenient
Space Status : NORMAL
Raw Capacity : 92.4 TB
Total Capacity : 30.8 TB
Used Capacity : 269.8 GB
Free Capacity : 30.5 TB
Compression Savings : 82.61%
Deduplication Savings : 0.00%
Total Savings : 82.61%
# of Nodes Configured : 4
# of Nodes Online : 4
Data IP Address : SUP61-CIP.hx.local
Resiliency Health : HEALTHY
Policy Compliance : COMPLIANT
Data Replication Factor : 2 Copies
# of node failures tolerable : 1
# of persistent device failures tolerable : 2
```

```
# of cache device failures tolerable : 2
Zone Type : Unknown
All Flash : No
```

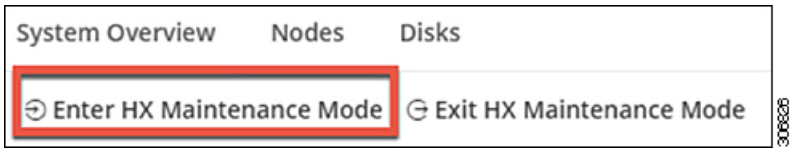
Step 3 Select a Hyper-V host to be updated.

Step 4 Log in to **HX Connect** with the HyperFlex Admin Service account.

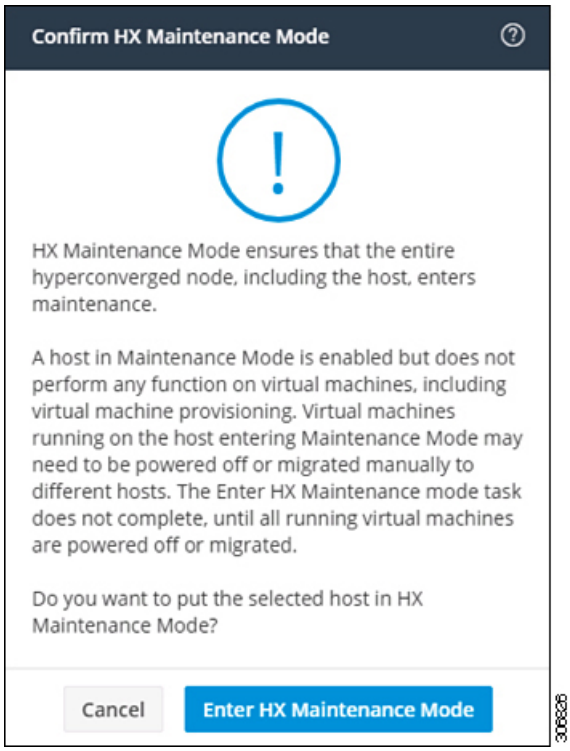
Step 5 Navigate to **System Information** > **Nodes**.

Step 6 Click on the Hyper-V host to be updated. The host entry is highlighted in a light blue color.

Step 7 In the **Nodes** tab, Click **Enter HX Maintenance Mode**.



Step 8 An HX Maintenance Mode screen displays with an alert for maintenance mode operations.



Step 9 In Failover Cluster Manager, verify in the **Roles** screen that all VMs have been evacuated from the selected Hyper-V Host with the exception of the Controller VM (StCtlVM). The controller VM cannot be reallocated.

Step 10 Perform the Window Update on the selected Hyper-V host.

Step 11 After all the reboots and software updates have been completed in the HX Connect UI, **System Information** > **Nodes**, select the updated Hyper-V host and click **Exit HX Maintenance Mode**.

Step 12 Log into a controller VM and use the **hxcli cluster info check** command to verify that the cluster is healthy and can tolerate the same number of node failures in *Step 1*.

Note This operation may take a few minutes before the cluster returns to a healthy state.

Step 13 Once the cluster is healthy and can tolerate the same number of node failures in *Step 1* then repeat *Steps 2 – 12* until all Hyper-V hosts have been updated.