Preparing for Upgrade

HyperFlex Upgrade Preparation

Note The following upgrade process only applies to when a user is upgrading from Cisco HX Release 4.5(2a) or later.

Note If you are upgrading one of the following rather than a HyperFlex standard cluster:

- For HyperFlex Edge clusters and DC-No-FI, see HyperFlex Edge Upgrade.

- For Stretched clusters, see Stretched Cluster Upgrade.

- For split-upgrade procedures, see HyperFlex Offline Upgrade Workflow.

The following image describes the general upgrade workflow for a full-stack HyperFlex standard cluster.
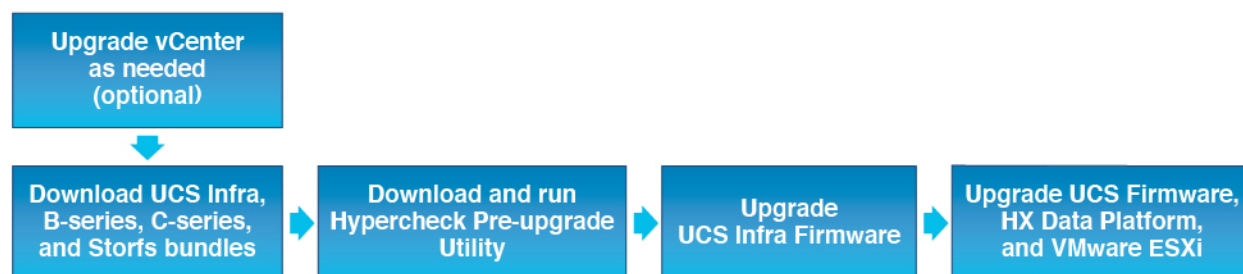
The upgrade requires you to complete the following tasks in this order:

1. Complete all tasks in the Prerequisites section of this guide.

2. Run the Hypercheck Health & Pre-Upgrade tool to on your HyperFlex systems to ensure its stability and resiliency Hypercheck : Hyperflex Health & Pre-Upgrade Check Tool

3. Verify that your VMware vCenter version is 7.0 U2, 7.0 U3, or 8.0 or later and that vCenter and your target ESXi version are compatible. See, *VMware Product Interoperability Matrices* on the VMware site. Also, verify the vCenter version is compatible with the target HXDP version.

Checking Cluster Storage Capacity

Cisco recommends that you check the cluster storage capacity before starting the upgrade of an existing installation of Cisco HX Data Platform. If the storage utilization in the cluster is equal to 76% or more (capacity + overhead), the upgrade validation fails.

Refer to the *HX Storage Cluster Overview* chapter in the Cisco HyperFlex Data Platform Administration Guide for background details about checking cluster storage capacity.

Perform the following validations on each HyperFlex node before starting the upgrade.

- Verify that the HyperFlex cluster is healthy and online.

- Verify all HyperFlex cluster nodes are connected to the vCenter and are online.

- Verify that DRS is enabled and set to fully automated if licensed for DRS. If DRS is Disabled, manual intervention is required to vMotion the VMs manually when prompted by the upgrade process.

- Verify vMotion is configured on all the nodes, If vMotion is not configured, see Verify vMotion Configuration for HX Cluster before starting the upgrade.

- Verify that ESXi Agent Manager (EAM) health is normal.

- Verify the health of the UCSM Fabric Interconnect cluster in Cisco UCS Manager.

Verify Health of an UCS Fabric Interconnect Cluster in Cisco UCS Manager

Step 1 Verify if the high availability status of the fabric interconnects shows that both the fabric interconnects are up and running. See the Cisco UCS Manager System Monitoring Guide for more information.

Step 2 Verify that all servers have been discovered.

Step 3 Verify that the HyperFlex servers have no faults.

Step 4 Verify that vNIC faults are cleared to ensure VMware ESXi vSwitch uplinks are up and operational.

Step 5 Verify that the data path is up and running. See the Cisco UCS Manager Firmware Management Guide for more information.

Viewing HyperFlex Cluster Health

Using CLI

Log into any controller VM in the storage cluster. Run the command `hxcli cluster info [flags]`.

```
address: 192.168.100.82
name: HX-Cluster01
state: online
uptime: 0 days 12 hours 16 minutes 44 seconds
activeNodes: 5 of 5
compressionSavings: 78.1228617455
deduplicationSavings: 0.0
freeCapacity: 38.1T
healingInfo:
    inProgress: False
resiliencyDetails:
        current ensemble size:5
        # of ssd failures before cluster shuts down:3
        minimum cache copies remaining:3
        minimum data copies available for some user data:3
        minimum metadata copies available for cluster metadata:3
        # of unavailable nodes:0
        # of nodes failure tolerable for cluster to be available:2
        health state reason:storage cluster is healthy.
        # of node failures before cluster shuts down:3
        # of node failures before cluster goes into readonly:3
        # of hdd failures tolerable for cluster to be available:2
        # of node failures before cluster goes to enospace warn trying to move the existing
 data:na
        # of hdd failures before cluster shuts down:3
        # of hdd failures before cluster goes into readonly:3
        # of ssd failures before cluster goes into readonly:na
        # of ssd failures tolerable for cluster to be available:2
resiliencyInfo:
    messages:
      Storage cluster is healthy.
      state: healthy
      hddFailuresTolerable: 2
      nodeFailuresTolerable: 1
      ssdFailuresTolerable: 2
spaceStatus: normal
totalCapacity: 38.5T
totalSavings: 78.1228617455
usedCapacity: 373.3G
clusterAccessPolicy: lenient
dataReplicationCompliance: compliant
dataReplicationFactor: 3
```

Sample response that indicates the HyperFlex storage cluster is online and healthy.

storfs-se-core Package Compatibility

The behavior in HXDP Release 5.5(x) and earlier was that storfs-se-core installation enforced a strict version and build number matching between the storfs-se-core package and the HXDP version. While

MyCiscoEntitlement (MCE) restricted the versions of storfs-se-core available for downloaded to the versions that were posted to MCE at the time you ordered the SE PID.

Beginning with HXDP Release 6.0(1a) your download is not restricted to the package in /home/admin or /tmp path.

storfs-se-core Package Compatibility Matrix

You can review the storfs-se-core package compatibility in the following table or the CLI as described.

HXDP Version	Minimum SE Package Version
HXDP Release 6.0(x)	6.0
HXDP Release 5.5(x)	5.5
HXDP Release 5.0(x)	5.0

To display the hx-se-compatibility using CLI, use the "`hx_se_compatibility`" command.

Example output:

```
"hx_se_compatibility": [
        {
            "hx_version": "5.0",
            "se_min_version": "5.0"
        },
        {
            "hx_version": "5.5",
            "se_min_version": "5.5"
        },
        {
            "hx_version": "6.0",
            "se_min_version": "6.0"
```

Installing the se-core Package in HXDP Release 6.0 or Later

Beginning with HXDP Release 6.0(1a) validation for path is removed. You are not restricted to download the package only in /home/admin or /tmp path.

Installation of se-core package is a day-two operation and it is installed after the cluster is created. To install the package you need to download the package and install manually.

Before you begin

Create your cluster

Step 1   Download se-core package with extension .deb.gz from the release/package/ directory for the cluster hx version and build number from the buildweb page and place it in /home/admin or /tmp directory.

Step 2   Install the package:

a)   To install the package on the cluster level on all of the nodes, use the `priv install-se-core-package --cluster --path <full path of the se-core package>` command.

b)   To install the package only on the current node, use the `priv install-se-core-package --local -path <full path of the se-core package>` command.

Step 3   To verify that the se-core package is installed successfully use the command `hxcli encryption overview`.

Example output state before installing the package:

```
hxshell:~$
    hxshell:~$ hxcli encryption overview
    State   : NOT_SUPPORTED
    hxshell:~$
```

Example output after installing the package:

```
hxshell:~$
    hxshell:~$ hxcli encryption overview
    State   : NOT_CONFIGURED
    hxshell:~$
```

Installing the se-core Package in HXDP Release 5.5 or Earlier

Installation of se-core package is a day-two operation and it is installed after the cluster is created. To install the package you need to download the package and install manually.

This install process was introduced in HXDP Release 6.0(1a).

Before you begin

Create your cluster

Step 1   Download se-core package with extension .deb.gz from the release/package/ directory for the cluster hx version and build number from the buildweb page and place it in /home/admin or /tmp directory.

Step 2   Install the package:

a) To install the package on the cluster level on all of the nodes, use the `priv install-package --cluster --path <full path of the se-core package>` command.

b) To install the package only on the current node, use the `priv install-package --local –path <full path of the se-core package>` command.

Step 3   To verify that the se-core package is installed successfully use the command `hxcli encryption overview`.
Output state before installing the package:

```
State : NOT_SUPPORTED
```

Output state after installing the package:

```
State : NOT_CONFIGURED
```