



Upgrading VMware Cloud Foundation on HPE ProLiant

Upgrading VMware Cloud Foundation 5.1.1 to 5.2

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EXECUTIVE SUMMARY

VMware® Cloud Foundation™ (the solution) is an integrated hybrid cloud platform that delivers a complete set of software-defined services for compute, storage, networking, security, and cloud management for the private and public cloud. The solution brings together VMware vSphere®, VMware vSAN™, VMware NSX®, and, VMware Aria Suite Lifecycle, into a natively integrated stack to deliver enterprise-ready cloud infrastructure. Further, the solution automates bring-up, configuration, provision, and life cycle management (LCM) of the stack with SDDC Manager. VMware by Broadcom releases a new version of general availability (GA) on a quarterly cadence and users are automatically notified from the SDDC Manager when upgrades become available.

Hewlett Packard Enterprise and VMware by Broadcom have collaborated to help customers accelerate the journey to hybrid cloud, bringing the promise of the software-defined data center to life. The VMware Cloud Foundation on HPE ProLiant Servers solution dramatically improves both the value and business outcomes of the customers, thus delivering a simplified and secure private cloud platform. This solution is flexible, easy to deploy, seamless to manage, simple to operate, and runs all your enterprise apps—both traditional and containerized—in cloud environments.

Hewlett Packard Enterprise brings out technical papers that describe the best practices in deploying solutions on this combination that are based on the VMware Cloud Foundation version available at the time of publication. This Technical paper provides validated and comprehensive details—including prerequisites, step-by-step configuration, and best practices—for the customers to upgrade to the latest version of the solution along with the compatible infrastructure management software, drivers, and firmware for HPE ProLiant Servers in online mode.

OVERVIEW

This technical paper describes the method to upgrade VMware Cloud Foundation to 5.2 on HPE ProLiant Servers. This paper only describes the method to upgrade the VMware Cloud Foundation components when the SDDC Manager has access to the internet. For an overview of the upgrade process, refer to VMware by Broadcom documentation "[Upgrading VMware Cloud Foundation to 5.2](#)".

Lifecycle of VMware Cloud Foundation

SDDC Manager internally has Lifecycle Management (LCM) enabled, which sequences automated updates on VMware Cloud Foundation components such as SDDC Manager and its internal services and VMware components such as NSX® for vSphere®, vCenter Server®, VMware ESXi™, and VMware Aria Suite Lifecycle. SDDC Manager is configured to communicate with the Broadcom Support portal provided the SDDC Manager has internet access, and the VMware depot credentials are valid.

High Level Workflow

High-level update workflow is as follows:

1. Receive notification of update availability on SDDC Manager.
2. Download all update bundles for core VCF Stack that includes SDDC Manager, Center Server®, NSX, and VMware Aria Lifecycle Suite.
3. Run prechecks on SDDC Manager to check for any compatibility issues with upgrade of SDDC Manager, vCenter Server, and NSX.
4. Select update targets and schedule upgrade of SDDC Manager.
5. To update Aria Lifecycle Suite Manager and its components, upload Aria upgrade bundles to Aria Suite Lifecycle Manager.
6. Run precheck on Aria Suite Lifecycle Manager and its products to check for any compatibility issues with upgrade of Aria Suite Lifecycle Manager.
7. Perform upgrade of Aria Lifecycle Manager and its products by selecting the appropriate upgrade bundle in Aria Lifecycle Suite Manager.
8. On SDDC Manager, perform upgrade of NSX Datacenter by selecting appropriate upgrade targets followed by upgrade of vCenter Server.
9. When HPE OneView and HPE OneView for vCenter(OV4VC) client plug-in is being used to perform ESXi server firmware updates, it is recommended to check OneView and OV4VC versions prior to the ESXi upgrade. For VCF 5.2, upgrade OneView and the OV4VC plug-in as per the versions recommended in software firmware matrix, <https://www.hpe.com/psnow/doc/a50011482enw>.
10. On SDDC Manager, perform upgrade of ESXi hosts by selecting appropriate upgrade targets.



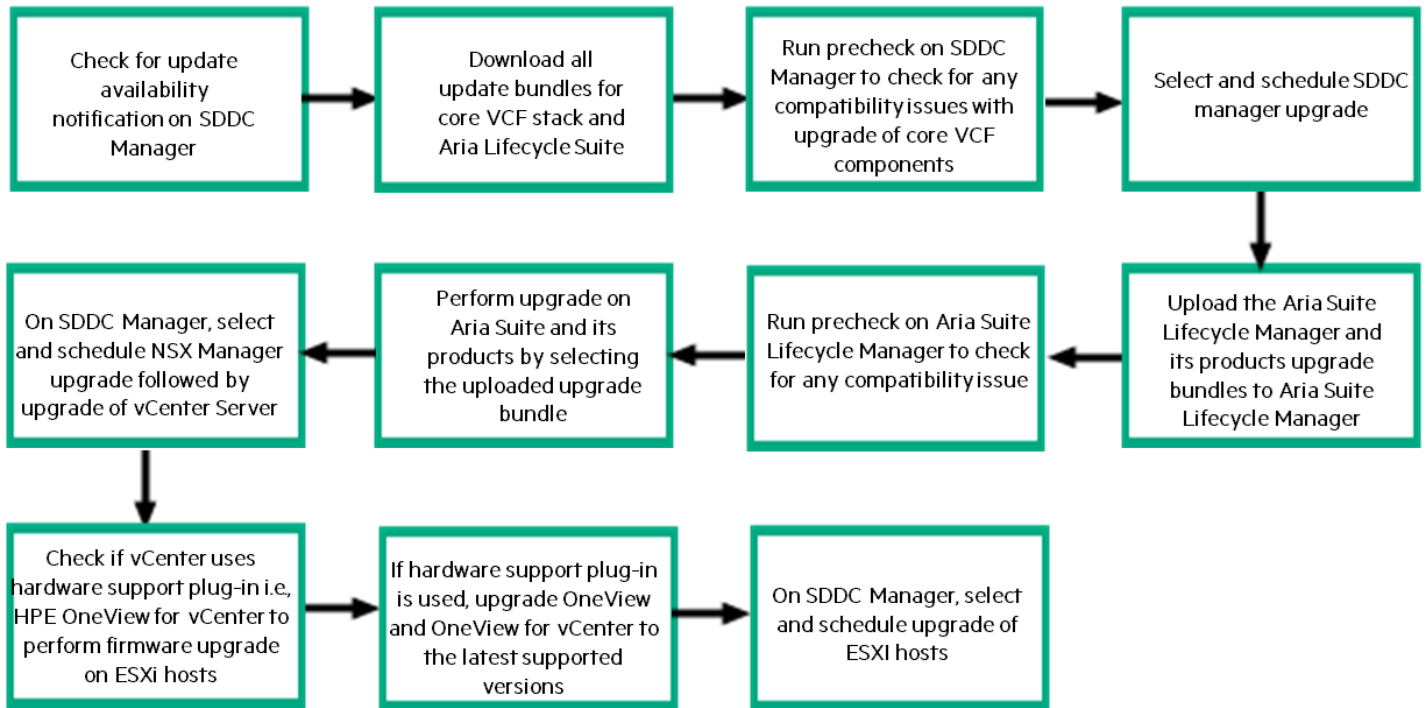


FIGURE 1. High level upgrade workflow

Software Bill of Materials

VMware Cloud Foundation 5.1.1 BOM

The following VMware Cloud Foundation Software Component BOM represents the expected starting point for the in-place upgrade:

TABLE 1. VMware Cloud Foundation 5.1.1 BOM

Software component	Version	Build number
SDDC Manager	5.1.1	23480823
VMware NSX	4.1.2.3	23382408
VMware vCenter Server Appliance	8.0 Update 2b	23319993
VMware ESXi	8.0 Update 2b	23305546
VMware Aria Suite Lifecycle	8.16	23251571



VMware Cloud Foundation 5.2 BOM

The table shows the VMware Cloud Foundation 5.2 BOM after the upgrade is complete.

TABLE 2. VMware Cloud Foundation 5.2 Software Components

Software component	Version	Build number
SDDC Manager	5.2	24108943
VMware NSX	4.2	24105817
VMware vCenter Server Appliance	8.0update 3	24091160
VMware ESXi	8.0update 3	24022510
VMware Aria Suite Lifecycle	8.18	24029603

UPGRADE PREREQUISITES

Before upgrading VMware Cloud Foundation, make sure that the following prerequisites are met.

1. Take a backup of the SDDC Manager appliance to an external SFTP server.
2. Before you upgrade a vCenter Server, take a file-based backup of vCenter Server.
3. Ensure no domain operations are in progress. Domain operations include creating VI workload domains, expanding a workload domain (adding a cluster or host), and shrinking a workload domain (removing a cluster or host).
4. Download the relevant bundles for the upgrade from SDDC Manager using the 'Bundle Management' option.

NOTE

To perform ESXi upgrade, HPE custom ISO image should be used. HPE OEM Custom image can be downloaded from <https://www.hpe.com/us/en/servers/hpe-esxi.html>.

5. Make sure that there are no failed workflows in your system and none of the VMware Cloud Foundation resources are in activating or error state.
6. Ensure that passwords for all VMware Cloud Foundation components are valid.
7. A temporary IP Address for vCenter within the management network is required during the vCenter Server Migration-based upgrade task.

A multi-product diagnostic tool named 'VCF Diagnostic Tool for vSphere' can be run directly on a vCenter Server appliance to know the accurate state of system configuration. This tool executes a series of checks on the system configuration and will report issues making it easier to detect inconsistencies. Similarly, a diagnostic tool named 'VCF Diagnostic Tool' can be run on SDDC Manager that runs a series on checks on system configuration and reports any inconsistencies found.

To know more about these diagnostic tools, refer to <https://knowledge.broadcom.com/external/article/344917/using-the-vcf-diagnostic-tool-for-vspher.html>

Precheck – HPE Servers

This section describes the procedure to validate the HPE Servers hardware's firmware and software with the compatibility matrix.

1. Validate existing HPE Servers firmware and software versions with HPE Firmware and Software Compatibility Matrix for VMware Cloud Foundation on the HPE ProLiant Server.
2. Validate the VMware Cloud Foundation version that you are upgrading to is supported by relevant drivers and firmware.
3. Evaluate any critical alerts and warnings that might have been raised on the resources suggesting any recommended actions.

For more information on updating firmware, refer to <https://www.hpe.com/us/en/servers/smart-update.html>.



UPGRADE TO VMWARE CLOUD FOUNDATION 5.2 - MANAGEMENT DOMAIN

The first step is to download the required bundles for each VMware Cloud Foundation component that requires an upgrade. After all the bundles are downloaded in SDDC Manager, upgrade the management domain and then VI workload domains. Figure 2 shows the upgrade workflow to the management domain components of the VMware Cloud Foundation. Upgrade starts with SDDC Manager, followed by Aria Suite Lifecycle Manager and its products, NSX, vCenter server, and ESXi hosts.

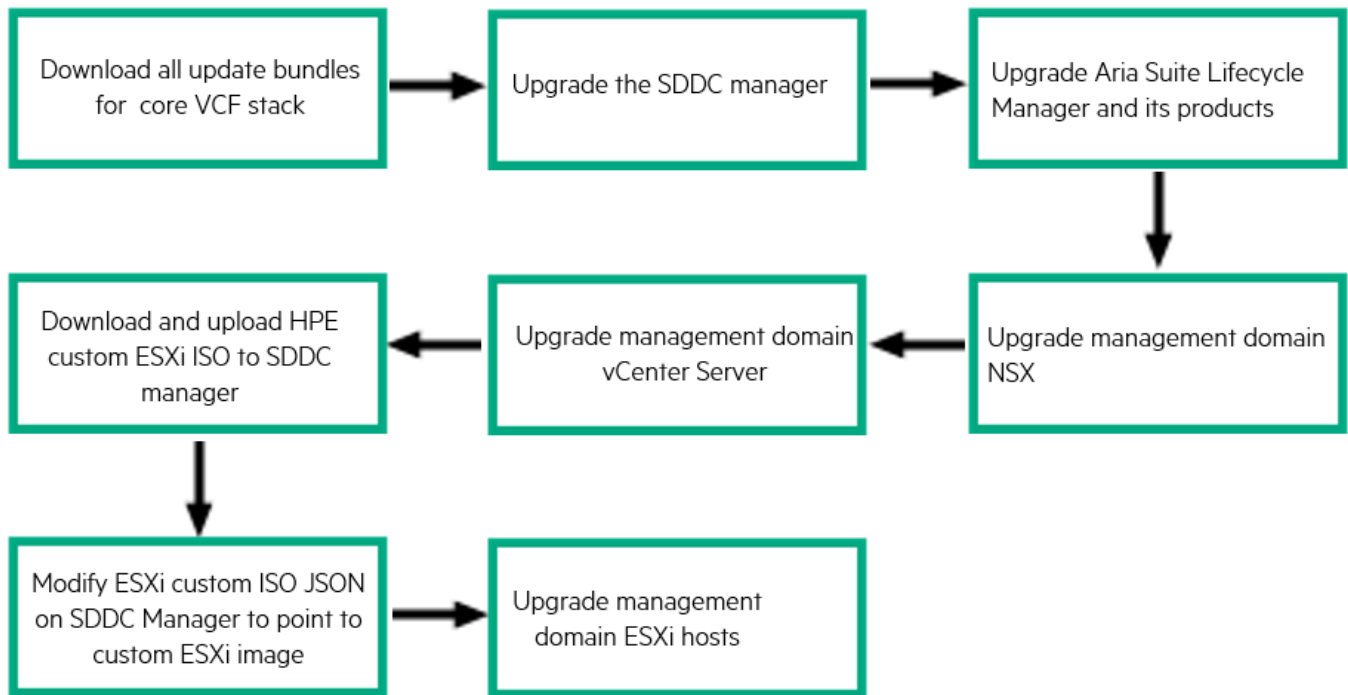


FIGURE 2. Upgrade workflow for VCF management domain using vSphere Lifecycle Manager Baselines

Download Bundles Using SDDC Manager

To download upgrade bundles, connect SDDC Manager to your Broadcom Support Portal account. And then select the bundles to download.

1. Configure SDDC Manager to connect to the Broadcom support portal
 - a. In the navigation pane, click **Administration>Online Depot**.
 - b. Click **Authenticate**.
 - c. Type your Broadcom support portal username and password.
 - d. Click **Authorize**.



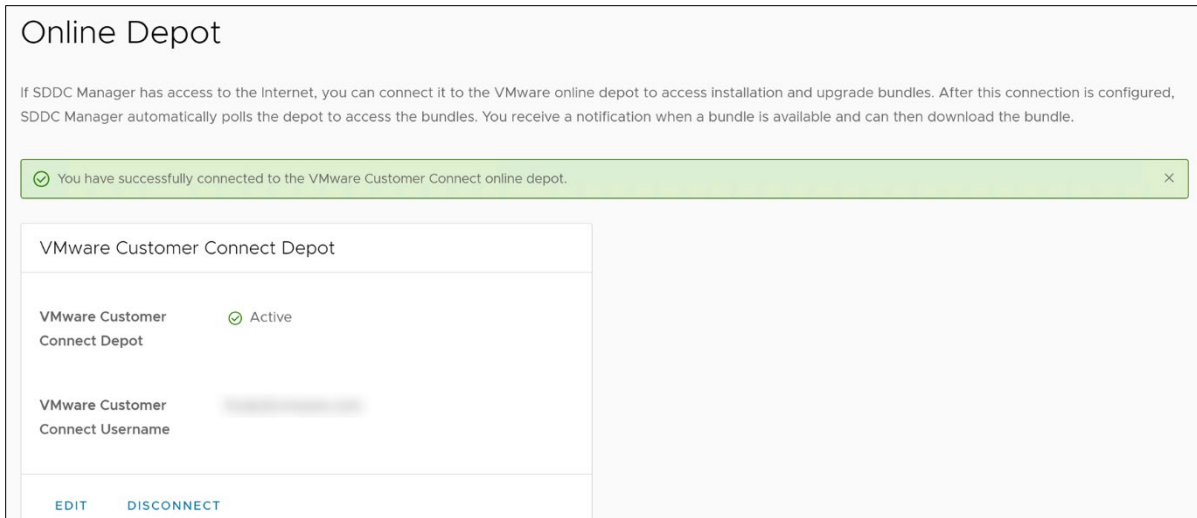


FIGURE 3. Connect to Online Depot with Broadcom support portal credentials

2. In the navigation pane, click Lifecycle Management > Bundle Management.
3. Click the Bundles tab to view available bundles.

NOTE

If you just connected SDDC Manager to the Broadcom support portal, it could take some time for bundles to appear.

4. For the bundle you want to download, do one of the following:
 - Click **Download Now** for an immediate download. The bundle download begins right away.
 - OR
 - Click **Schedule Download** to schedule a download. Select the date and time for the bundle download and click **Schedule**.
5. Click the **Download History** tab to see the downloaded bundles.

The management domain must be upgraded before upgrading VI workload domains in the environment. Upgrade the components in the management domain in the following order:

1. SDDC Manager and VMware Cloud Foundation services
2. Aria Suite Lifecycle Manager and its products
3. NSX Data Center.
4. vCenter Server.
5. ESXi.

Precheck – Management Domain

Precheck is necessary before applying an update or upgrade bundle to ensure that the environment is ready for the update.

For an ESXi bundle, the system performs a bundle level precheck in addition to the environment precheck.

1. In the navigation pane, click **Inventory > Workload Domains**.
2. On the **Workload Domains** page, click the management domain where you want to run the precheck.



3. On the domain summary page, click the **Updates/Patches** tab.

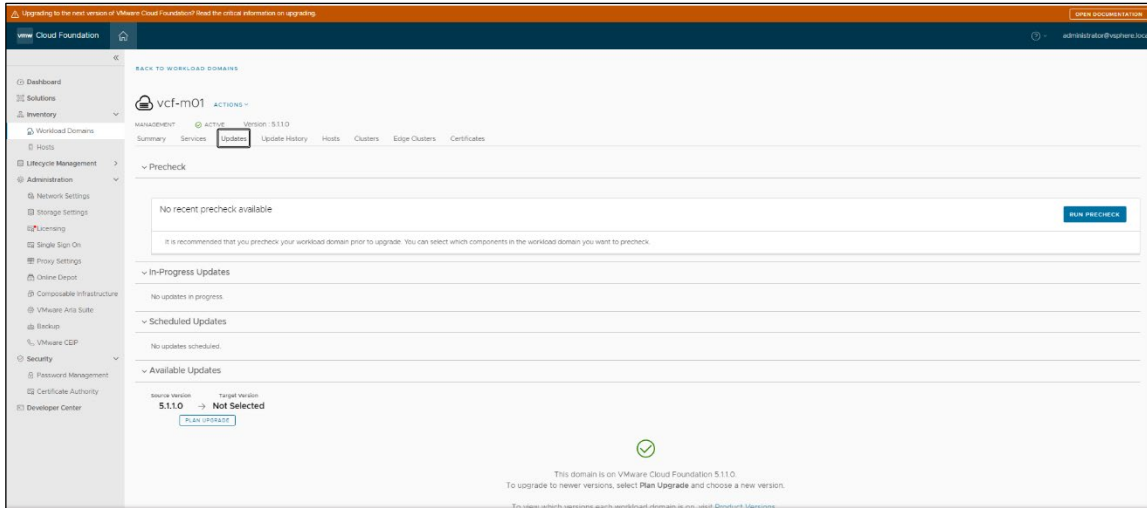


FIGURE 4. Management domain Updates/Patches tab

4. Click **Precheck** to validate that the environment is ready to be upgraded. After the precheck begins, a message appears indicating the time at which the precheck was started.

5. Click **View Status** to see detailed tasks and their status.

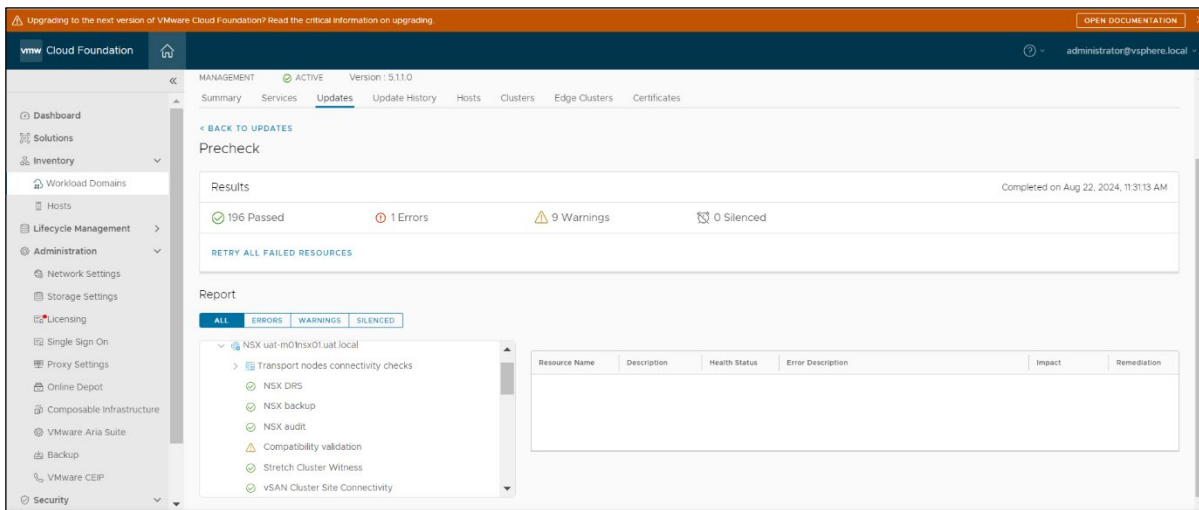


FIGURE 5. Management domain precheck results

6. To see details for a task, click the Expand arrow.

If a precheck task failed, fix the issue, and click **Retry Precheck** to run the task again. You can also click **Precheck Failed Resources** to retry all failed tasks.

The precheck result is displayed at the top of the Upgrade Precheck Details window. If you click **Exit Details**, the precheck result is displayed at the top of the **Precheck** section in the **Updates/Patches** tab.

Ensure that the precheck results are green before proceeding. A failed precheck may cause the update to fail.



SDDC Manager

Apply the VMware Cloud Foundation Upgrade Bundle. The VMware Cloud Foundation Upgrade bundle upgrades the SDDC Manager appliance and VMware Cloud Foundation services.

Prerequisites

- Ensure the VMware Cloud Foundation update bundle is downloaded for your target release.
- Ensure you have a recent successful backup of SDDC Manager to an external SFTP server.
- Ensure you have taken a snapshot of the SDDC Manager appliance.
- Ensure you have recent successful backups of the components managed by SDDC Manager.

Procedure

1. In the navigation pane, click **Inventory > Workload Domains**.
2. On the Workload Domains page, click the management domain.
3. On the domain summary page, click the **Updates/Patches** tab.
4. In the **Available Updates** section, select the target release.
5. Click the Select **Cloud Foundation Version** drop down button.
6. Select Cloud Foundation 5.2.0.

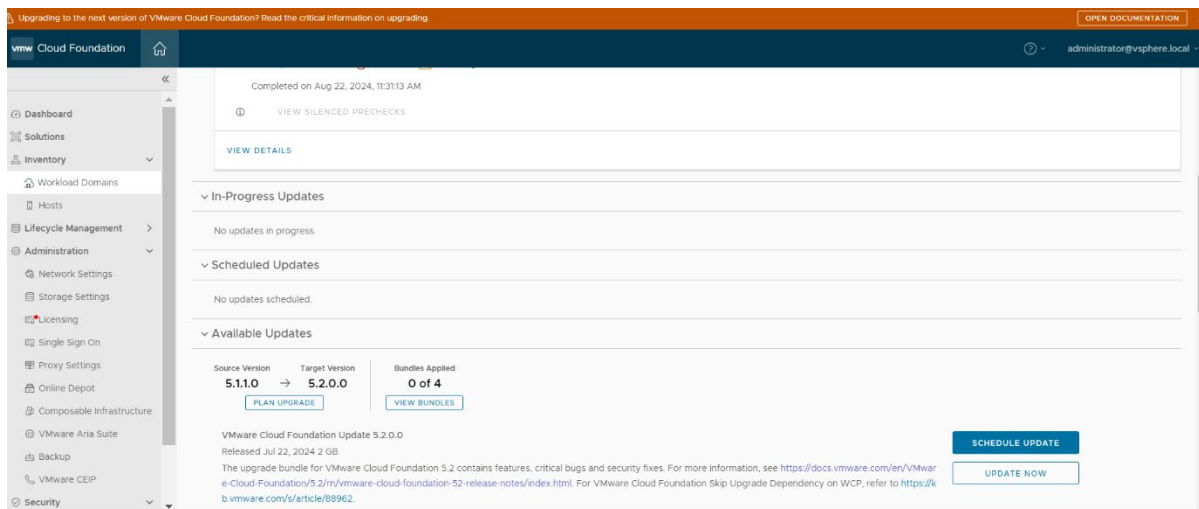


FIGURE 6. Select the update Version

7. Review the Upgrade plan and click **CONFIRM**.



Plan Upgrade for VMware Cloud Foundation 🔗

Select a version of VMware Cloud Foundation to upgrade this workload domain.

📘 To activate or deactivate compatibility checks on the target version, see KB 90074.

VMware Cloud Foundation 5.2.0.0 ▼

Select Version

Upgrade Summary 🔗

Software Component	Source Version	Source Build	Target Version	Target Build
SDDC Manager	5.11.0	23480823	5.2.0.0	24108943
VMware ESXi	8.0.2	23305546	8.0.3	24022510
VMware NSX	4.1.2.3.0	23382408	4.2.0.0.0	24105817
VMware vCenter Server Appliance	8.0.2.00200	23319993	8.0.3.00100	24091160
vRealize Suite Lifecycle Manager	8.16.0	23377566	8.18.0	24029603

By confirming, you are selecting a target version for this workload domain which will override your current target version and upgrade path. No upgrades will be performed until you schedule an upgrade. You can change your target version at any time until an upgrade is run or scheduled. For more information, review

CANCEL
CONFIRM

FIGURE 7. Management domain upgrade plan

8. This lists the SDDC Manager upgrade bundle. Download the bundle if not already downloaded.
9. After the download is complete, click **UPDATE NOW**.

FIGURE 8. SDDC Manager Update



10. The VMware Cloud Foundation Update Status window displays the components that will be upgraded and the upgrade status. Click **View Update Activity** to view the detailed tasks. After the upgrade is completed, a green bar with a check mark is displayed.

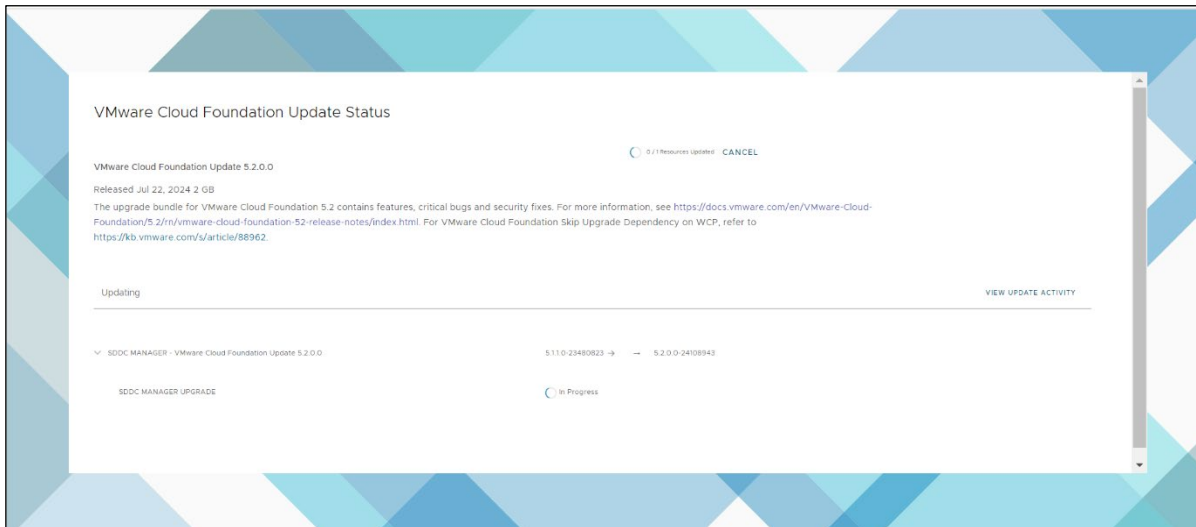


FIGURE 9. SDDC Manager Update progress

11. Click **FINISH** after the upgrade is complete.

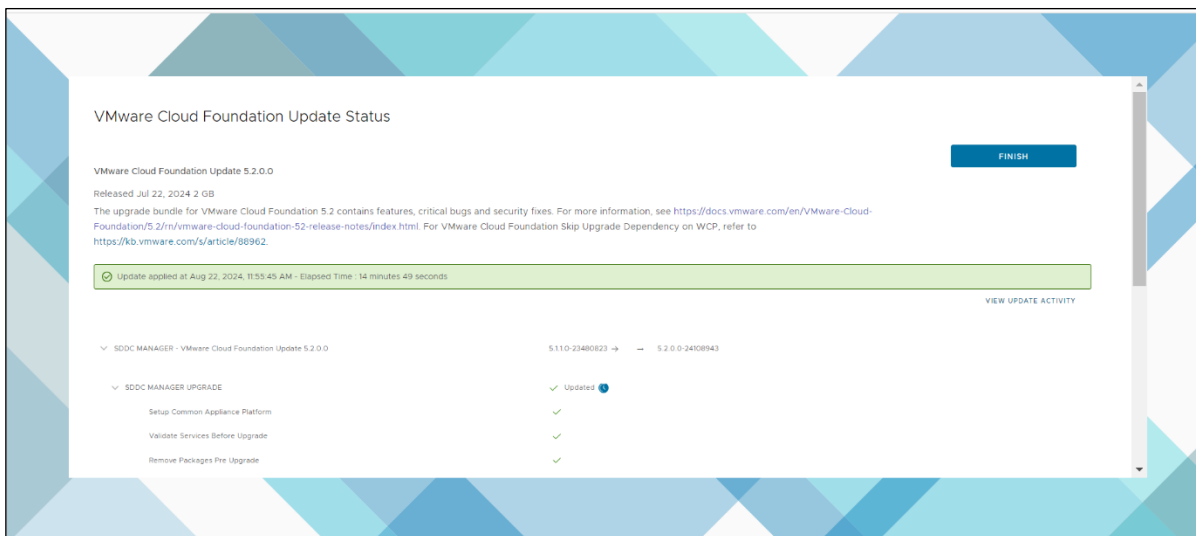


FIGURE 10. SDDC Manager Upgrade Completion

Aria Suite Lifecycle Manager

TABLE 3. Aria Lifecycle Suite and Components

Component	Update From	Upgrade to
Aria Lifecycle Suite	8.16(23377566)	8.18(24029603) & VRLCM 8.16.0 PSPACK5.pspak
VMware Aria Operations	8.16.0(23251571)	With CP 8.18.0(24025141)



Component	Update From	Upgrade to
VMware Aria Automation	8.16.1(23373968)	8.18(24024333)
VMware Aria Operations for logs	8.16(23364779)	8.18(24021974)
VMware Aria Operations for Networks	6.12.1(1707992545)	6.13(1717138317)

Prerequisite

1. Take a snapshot of the VMware Aria Suite Lifecycle virtual appliance. If you encounter any problems during upgrade, you can revert to this snapshot.
2. Verify that no critical tasks are currently in progress in VMware Aria Suite Lifecycle Manager. The upgrade process stops and starts VMware Aria Suite Lifecycle services and reboots the VMware Aria Suite Lifecycle virtual appliance, which might corrupt tasks that are in progress.
3. If you are upgrading VMware Aria Suite Lifecycle through a repository URL or CD-ROM, ensure that you download the VMware Aria Suite Lifecycle upgrade binary from the Broadcom Support Portal in advance. The file name is something like VMware-Aria-Suite-Lifecycle-Appliance-8.X.XX-XXXXXXXX-updaterepo.iso.
4. The downloaded ISO should be attached to VMware Aria Suite Lifecycle VM as a virtual CD-ROM drive. To do this, you can either upload the ISO in a content library of the vCenter server hosting VMware Aria Suite Lifecycle or you can upload in a data store that the VMware Aria Suite Lifecycle VM has access to. After uploading, you must attach the ISO to the VMware Aria Suite Lifecycle VM as a CD-ROM device by editing the VM's hardware configuration from the VMs 'Actions' option in vCenter inventory.

Upgrade process:

1. Login into VMware Aria Suite Lifecycle Manager VM by using- https://<IP_Address_or_FQDN_of_Lifecycle_Manager> or IP.

NOTE

You cannot use the VMware Aria Automation Easy Installer ISO file for a VMware Aria Suite Lifecycle upgrade. You must use the VMware Aria Suite Lifecycle upgrade ISO file.

2. From the My services dashboard, click Lifecycle Operations and click **Settings**.
3. Click **System Upgrade**.
4. Select **CDROM** as the **Repository Type**.
5. Click **Check for Upgrade**.

NOTE

Before Upgrading VMware Aria Lifecycle Manager from 8.16 to 8.18, you need to update product support pack to VRLCM 8.16.0 PSPACK5.pspak.

To Update Product Support Pack, log in to **VMware Aria Suite Lifecycle Manager VM > Settings > Product Support Pack > Upload > Select the support pack file > Import > Chose 'click here' to see the status of the file being uploaded > Install**.

6. After a few minutes, VMware Aria Suite Lifecycle displays a message indicating if there are updates available.
7. Click **Create Snapshot** and provide vCenter server credentials and **Submit**.
8. In the prerequisites section, click the Product snapshots check box and then click **Next**.
9. Click **Run Precheck**. When the pre-check validation is finished, download the report to view the checks and validation status.
10. Click Upgrade after a successful pre-check validation.
11. After a few minutes, log in to the VMware Aria Suite Lifecycle UI and click **Settings > System Upgrade** to check for the upgrade status message.



- When the upgrade is finished, VMware Aria Suite Lifecycle displays the upgrade completion message. If you do not see this message, wait for a few minutes and refresh the UI.

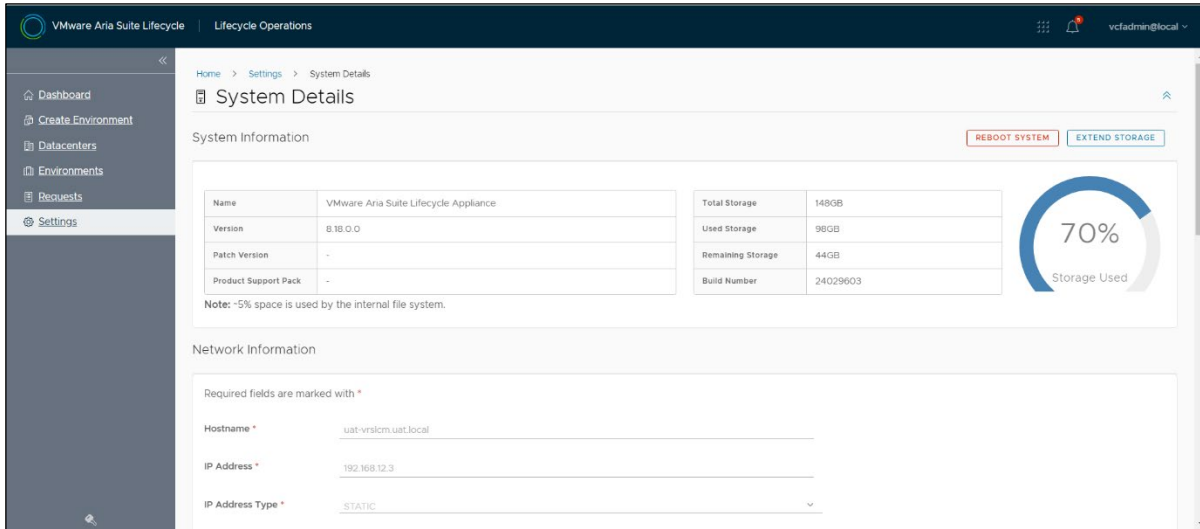


FIGURE 11. Aria lifecycle Suite version

VMware Aria Operations

- An Assessment Tool PAK will be used to perform pre upgrade validation of Aria Operations. Download the Assessment Tool PAK and Aria Operations_Manager_With_CP-XXXXX.PAK file from Broadcom Support Portal to your local machine.
- On Broadcom support portal, search for APUAT or VMware Aria Operations - Upgrade Assessment Tool.
- Open a browser and navigate to the VMware Aria Operations administrator console: https://<primary_node_IP>/admin.
- Then log into the administrator user interface with the user ID admin and the associated password.
- In the left pane of the administration home page, click Software Update.
- Click Install a Software Update at the top of the screen, The Add Software Update workspace appears.
- Click the Browse link and navigate to the PAK file you downloaded in Step 1.
- A check mark appears next to the statement: The selected file is ready to upload and install. Click **UPLOAD** to continue.
- Ensure to select the check mark next to the statement: Install the PAK file even if it is already installed.
- Click the UPLOAD link.
- The PAK file is uploaded from your local machine to VMware Aria Operations. Uploading may take a few minutes.
- After the PAK file is uploaded, click **NEXT**.
- The **End User License Agreement** appears.
- Select the check box next to the statement: I accept the terms of this agreement.
- Click **NEXT**. The Important Update and Release Information screen appears.
- Review the release information and click **NEXT**.
- At the Install Software Update screen, click INSTALL.
- After the installation is complete, we can see the added assessment PAK file under 'Software Update'.
- After Assessment Tool PAK is successfully installed, repeat steps 4 to 16 to upload the "Aria Operations_Manager_With_CP-XXXXX.PAK" file.
- After the installation is complete, we can see updated version of Aria Operations as shown in Figure 12.



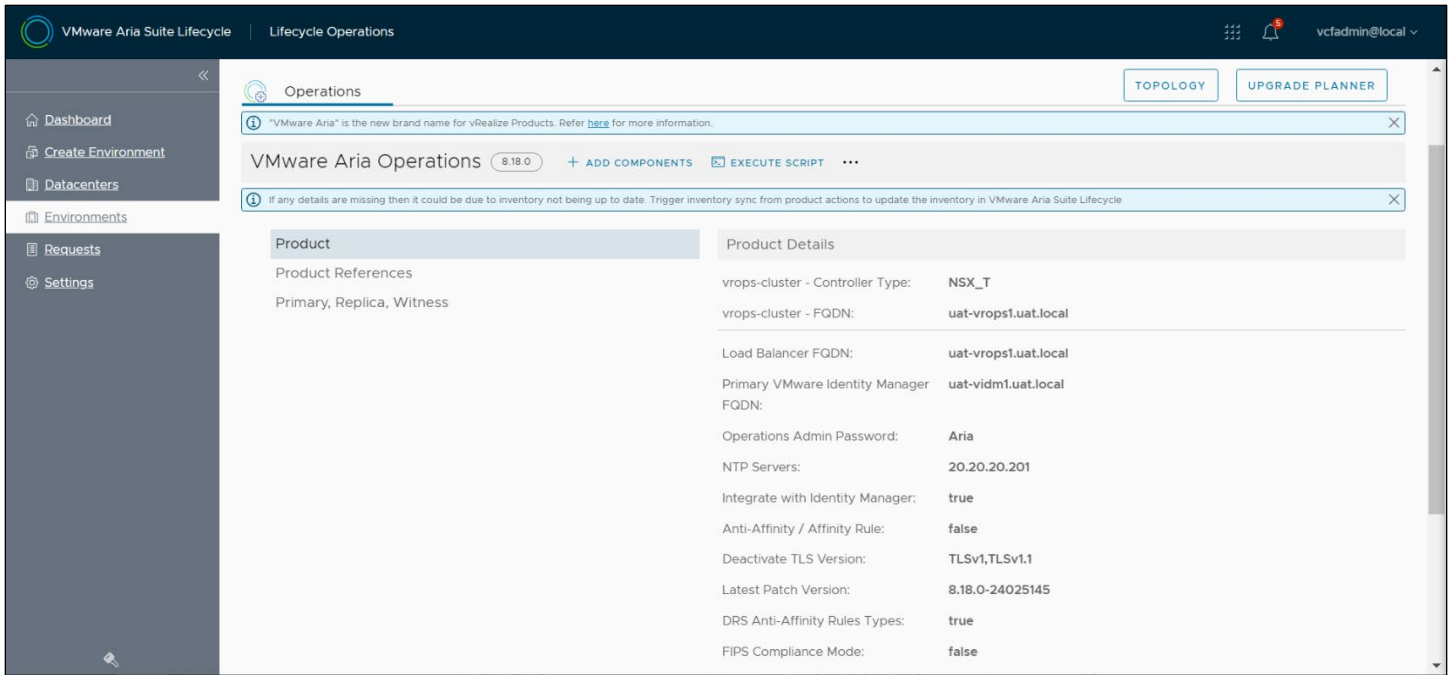


FIGURE 12. VMware Aria Operation version

VMware Aria Automation

Prerequisites:

1. VMware Aria Automation 8.18 software should be downloaded from Broadcom support portal.
2. Upload the downloaded software to a temporary location on the Aria Suite Lifecycle Manager VM.
3. Upgrade Process:
4. Log into VMware Aria Suite Lifecycle Manager VM by using IP or FQDN.
5. Click **VMware Aria Suite Lifecycle** on Left top corner.
6. Click **Environments** to display all Aria components.
7. Select 'VMware Aria Automation (v8.16.1)' and click **View Details > Upgrade**.
8. Click **Trigger Inventory SYNC** then **Proceed** and **Submit**.
9. Add the upgrade bundle in binary mapping option seen under **Settings**.
10. To add the upgrade bundle in binary mapping: Go to **Dashboard > Lifecycle Operations > Settings > Binary Mapping > Add Binaries**.
11. Under **Base Location**, provide the absolute path to the folder where the software is uploaded on Aria Suite Lifecycle Manager VM.
12. Click **Discover**.
13. Select the right upgrade bundle version and click **Add**.
14. Select **Click Here** to check the status of the software being uploaded.
15. Binary Mapping screen should show the software after it's successfully uploaded.



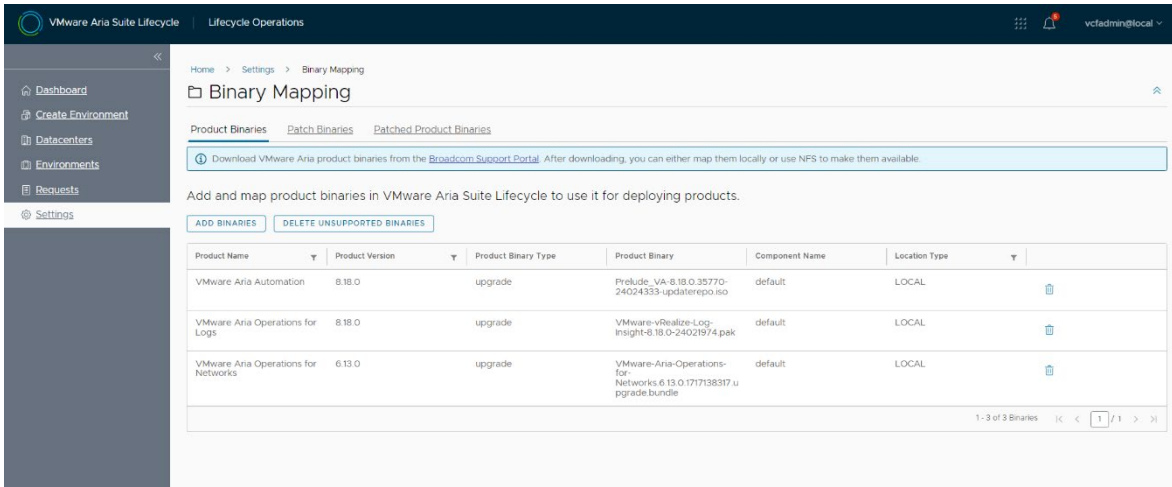


FIGURE 13. Binary Mapping

16. Click **VMware Aria Suite Lifecycle** on Left top corner.

17. Go to **Environments > VMware Aria Automation(v8.16.1) > Upgrade > Click Proceed.**



FIGURE 14. Proceed to Upgrade

18. Verify the product version then click **NEXT.**



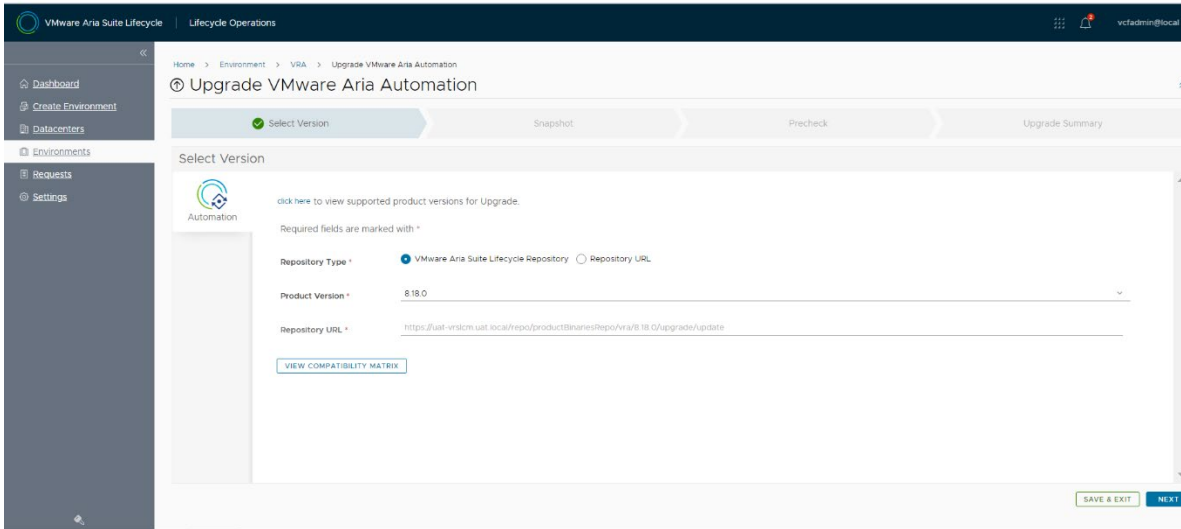


FIGURE 15. Upgrade VMware Aria Automation Screen

- 19. Select the 'Take product Snapshot' check box and again select 'Retain the taken product snapshot'.
- 20. Click **Next** and click **Run Recheck**.

NOTE

Aria Automation upgrade will error out due to insufficient memory asking user to increase the VM Memory from 48GB to 54 GB for all Aria Automation VMs. Ensure to increase the VM memory to 54GB to overcome this issue and to proceed with upgrade.

- 21. Make sure there are no errors during precheck then click **NEXT**.

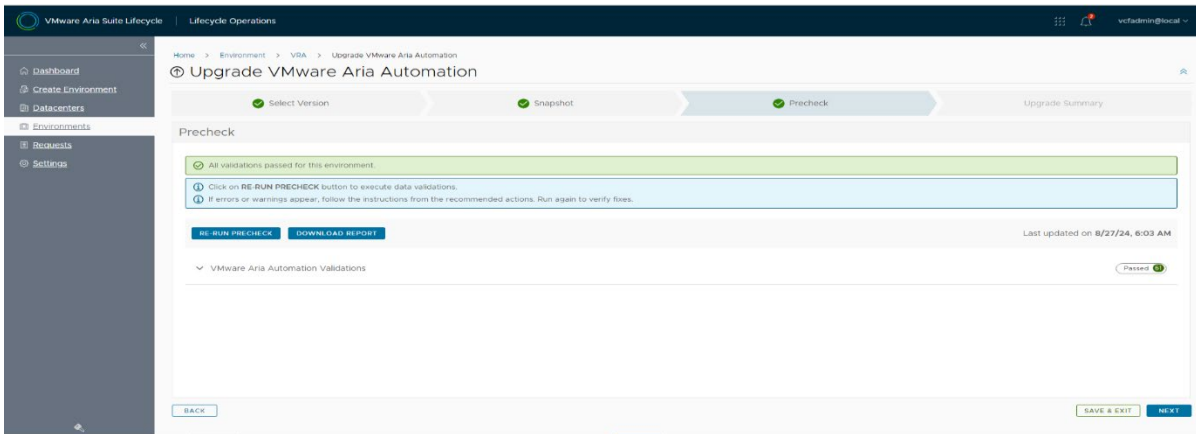


FIGURE 16. VMware Aria Automation Validation

- 22. Click **Submit**. It will take some time to complete the upgrade.



VMware Aria Operations for Logs

Prerequisites:

1. VMware Aria Operations for Logs 8.18 software should be downloaded from Broadcom support portal.
2. Upload the downloaded software to a temporary location on the Aria Suite Lifecycle Manager VM.

Upgrade process:

1. Log into VMware Aria Suite Lifecycle Manager VM by using IP or FQDN.
2. Click **VMware Aria Suite Lifecycle** on Left top corner.
3. Click **Environments** to display all Aria components.
4. Select '**VMware Aria Operations for Logs (v8.16)**' and click **View Details > Upgrade**.
5. Click **Trigger Inventory SYNC** then **Proceed** and **Submit**,
6. Add the upgrade bundle in binary mapping option seen under **Settings**.
7. To add the upgrade bundle in binary mapping: Go to **Dashboard > Lifecycle Operations > Settings > Binary Mapping > Add Binaries**.
8. Under Base Location, provide the absolute path to the folder where the software is uploaded on Aria Suite Lifecycle Manager VM.
9. Click **Discover**.
10. Select the right upgrade bundle version and click **Add**.
11. Select **Click Here** to check the status of the software being uploaded.
12. Binary Mapping screen should show the software after it's successfully uploaded.
13. Click VMware Aria Suite Lifecycle on Left top corner.
14. Go to **Environments > VMware Aria Operations for Logs (v8.16) > Upgrade > Click Proceed**.
15. Verify the product version then click Next.
16. Select the **Take product Snapshot** check box and again select '**Retain the taken product snapshot**'.
17. Click **Next** and click **Run Precheck**.
18. Make sure there are no errors during precheck then click **Next**.
19. Click **Submit**. It will take some time to complete the upgrade.

VMware Aria Operations for Networks

Prerequisites:

1. VMware Aria Operations for Networks 6.12.1 software should be downloaded from Broadcom support portal.
2. Upload the downloaded software to a temporary location on the Aria Suite Lifecycle Manager VM,
3. Upgrade process:
4. Login into VMware Aria Suite Lifecycle Manager VM by using IP or FQDN.
5. Click **VMware Aria Suite Lifecycle** on Left top corner.
6. Click **Environments** to display all Aria components.
7. Select '**VMware Aria Operations for Networks (v6.12.1)**' and click **View Details > Upgrade**.
8. Click Trigger Inventory SYNC then **Proceed** and **Submit**.
9. Add the upgrade bundle in binary mapping option seen under **Settings**.
10. To add the upgrade bundle in binary mapping: Go to **Dashboard >> Lifecycle Operations >> Settings >> Binary Mapping >> Add Binaries**.
11. Under **Base Location**, provide the absolute path to the folder where the software is uploaded on Aria Suite Lifecycle Manager VM.



12. Click **Discover**.
13. Select the right upgrade bundle version and click **Add**.
14. Select **Click Here** to check the status of the software being uploaded.
15. Binary Mapping screen should show the software after it's successfully uploaded.
16. Click **VMware Aria Suite Lifecycle** on Left top corner.
17. Go to **Environments >> VMware Aria Operations for Networks (v6.12.1) >> Upgrade >> Click Proceed**.
18. Verify the product version then click **next**.
19. Select the 'Take product Snapshot' check box and again select 'Retain the taken product snapshot'.
20. Click **Next** and click **Run Precheck**.
21. Make sure there are no errors during precheck then click **Next**.
22. Click **Submit**. It will take some time to complete the upgrade.

NSX - Management Domain

Upgrading NSX Manager involves the following components:

- Upgrade coordinator (This is a self-contained web application that orchestrates the upgrade process of hosts, NSX Edge cluster, and NSX Management plane)
- NSX Edge clusters
- Host clusters
- NSX Manager cluster

Prerequisites

- Ensure the upgrade bundle for NSX is downloaded in the SDDC Manager.
- Validate that the NSX Manager password is valid.
- Back up the NSX Manager configuration and download the technical support logs.
- Ensure that the appropriate communication ports are open between the NSX Edge nodes and NSX Manager.
- Ensure there are no active alarms on hosts or vSphere clusters using the vSphere Client.

Procedure

1. In the navigation pane, click **Inventory > Workload Domains**.
2. On the Workload Domains page, click the management domain that is upgrading and then click the **Updates/Patches** tab.
3. Click **Precheck** to run the upgrade precheck. Resolve any issues before proceeding with the upgrade.
4. In the **Available Updates** section, click **Update Now** next to the VMware Software NSX bundle.



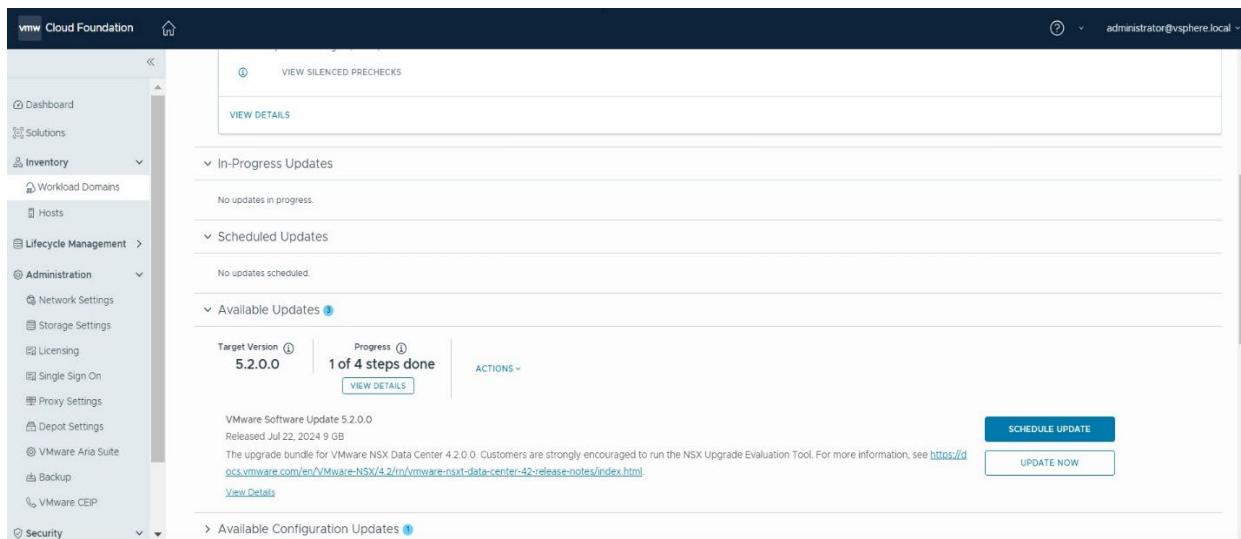


FIGURE 17. NSX Update

NOTE

If you don't see the bundle listed, click **Plan Upgrade > Confirm**. If any error messages regarding interoperability and compatibility are found, review the messages and if appropriate, bypass the SDDC compatibility checks using the following steps as recommended in this VMware by Broadcom KB article, <https://knowledge.broadcom.com/external/article?legacyId=90074>.

- SSH into SDDC Manager appliance with the 'vcf' user and su to root.
- Edit the file: /opt/vmware/vcf/lcm/lcm-app/conf/compatibility.flag
- Update the **property vcf.compatibility.controllers.compatibilityCheckEnabled** to **false**
- Save and close the file.
- Restart Lifecycle Management by running the command:

```
#systemctl restart lcm
```

5. By default, all NSX Edge clusters are upgraded. To select specific NSX Edge clusters, select **the Upgrade only NSX Edge clusters** checkbox and select the **Enable edge selection** option. Then select the NSX Edges you want to upgrade.
6. Click **NEXT**.



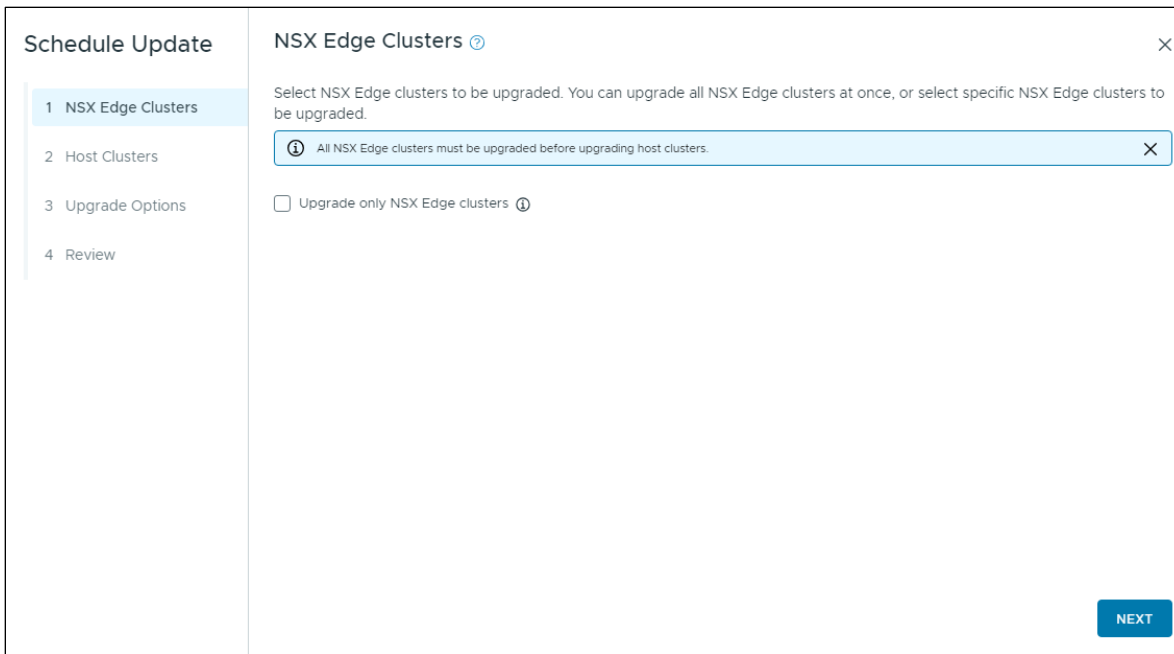


FIGURE 18. NSX Schedule Update – NSX Edge Cluster

- By default, all vSphere cluster’s NSX components across all workload domains are upgraded. If the management domain has more than one cluster, then you may want to select specific vSphere clusters to be upgraded, turn on the **Enable Host Cluster Selection** option. Host clusters are upgraded after all Edge clusters have been upgraded.
- Click **NEXT**.

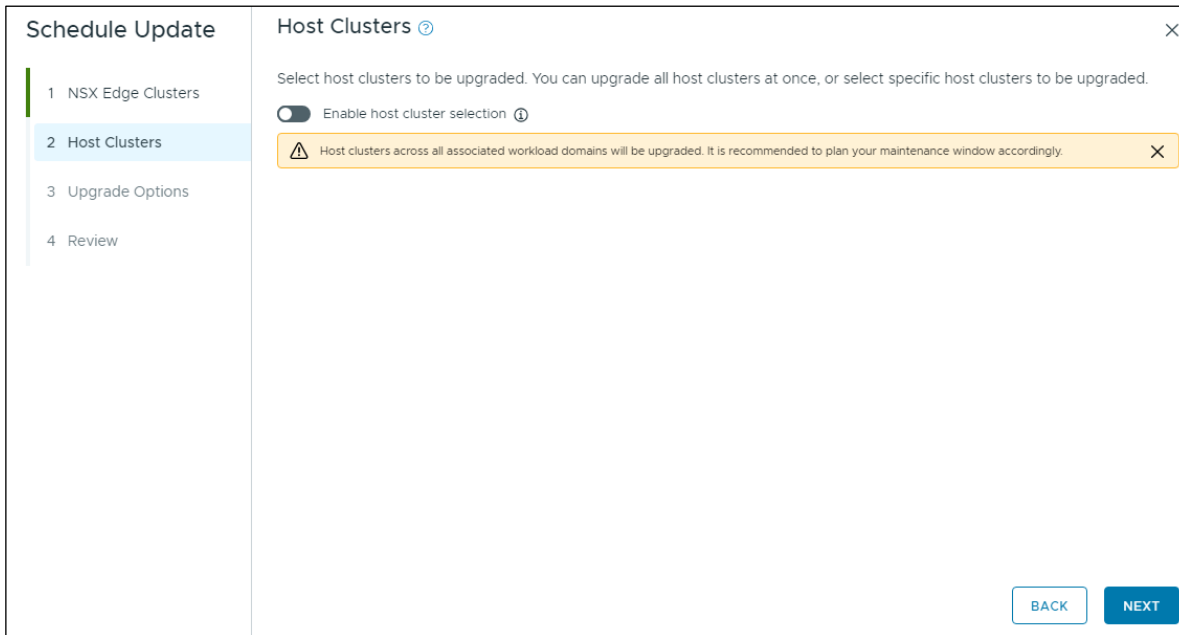


FIGURE 19. NSX Schedule Update – Host Cluster



9. On the **Upgrade Options** dialog, select the upgrade optimizations and click **NEXT**. By default, Edge clusters and host clusters are upgraded in parallel. You can enable sequential upgrade by selecting the relevant checkbox.

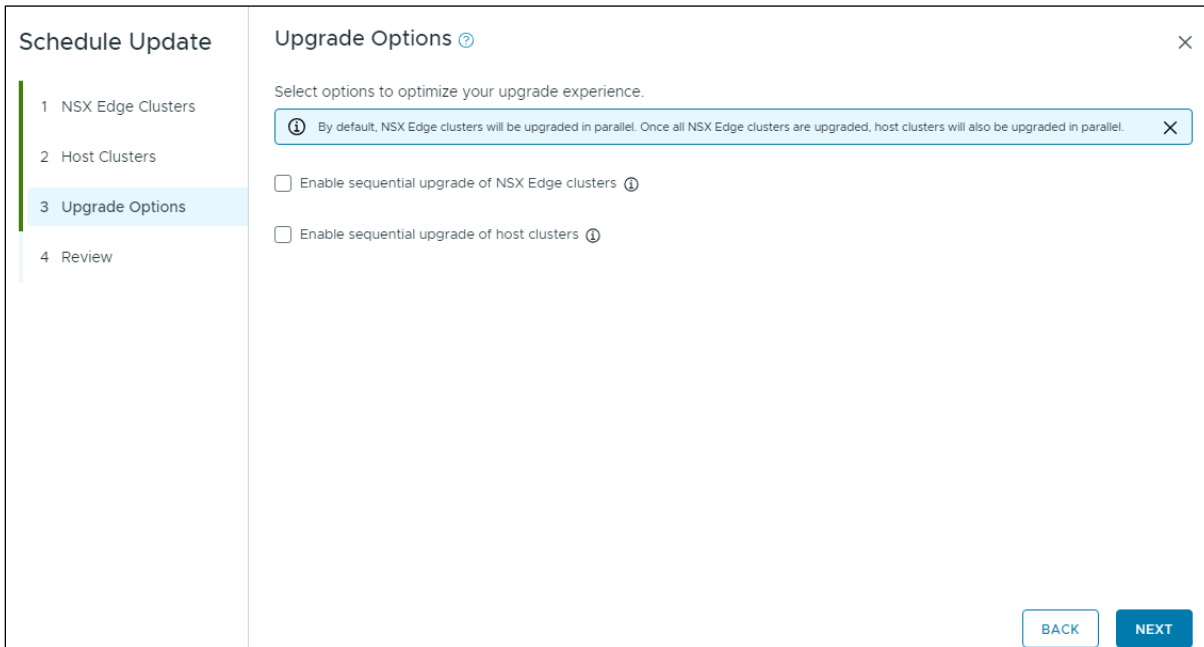


FIGURE 20. NSX Schedule Update – Upgrade Option

10. On the Review page, review your settings and click **FINISH**.

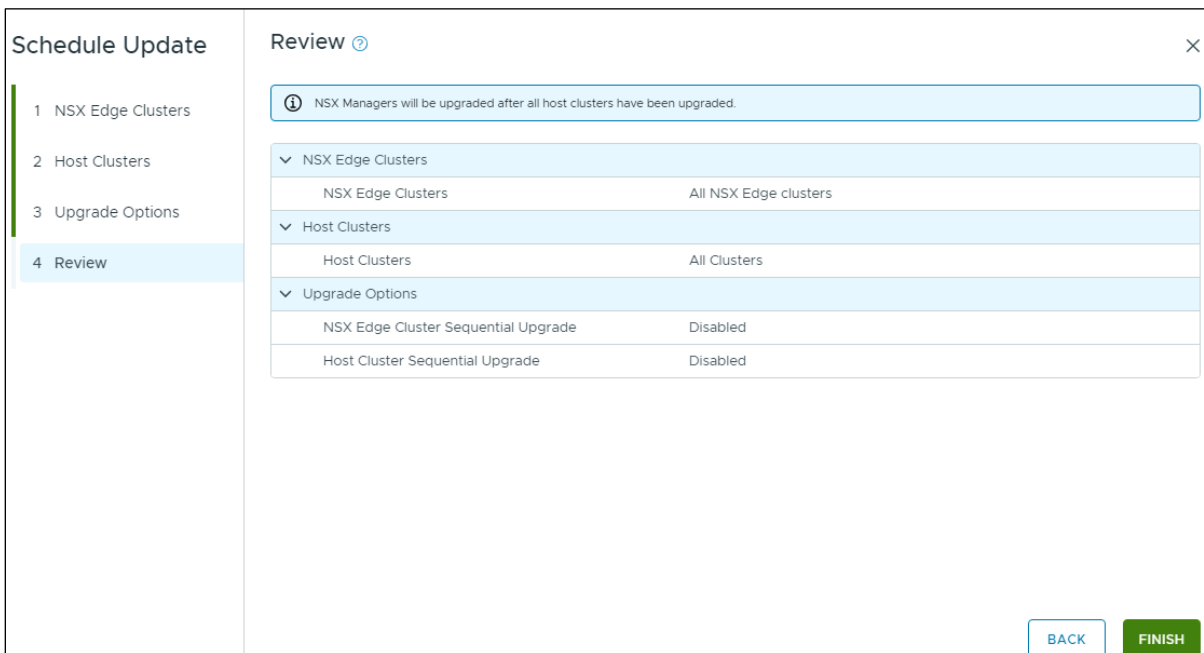


FIGURE 21. NSX Schedule Update – Review

11. The NSX upgrade begins, and the components are displayed.



12. When all NSX workload components are upgraded successfully, a message with a green background and check mark is displayed.

vCenter - Management Domain

The upgrade bundle for VMware vCenter Server is used to upgrade the vCenter Servers managed by SDDC Manager. Upgrade vCenter Server in the management domain before upgrading vCenter Server in VI workload domains.

Prerequisites

Take a file-based backup of the vCenter Server appliance before starting the upgrade. See [Manually Back up vCenter Server](#).

NOTE

After taking a backup, do not make any changes to the VMware vCenter Server inventory or settings until the upgrade completes successfully.

Procedure

1. In the navigation pane, click Inventory > Workload Domains.
2. On the Workload Domains page, click the domain you are upgrading and then click the Updates/Patches tab.
3. Click **Precheck** to run the upgrade precheck. Resolve any issues before proceeding with the upgrade.
4. In the **Available Updates** section, click **UPDATE NOW** next to the vCenter upgrade bundle.

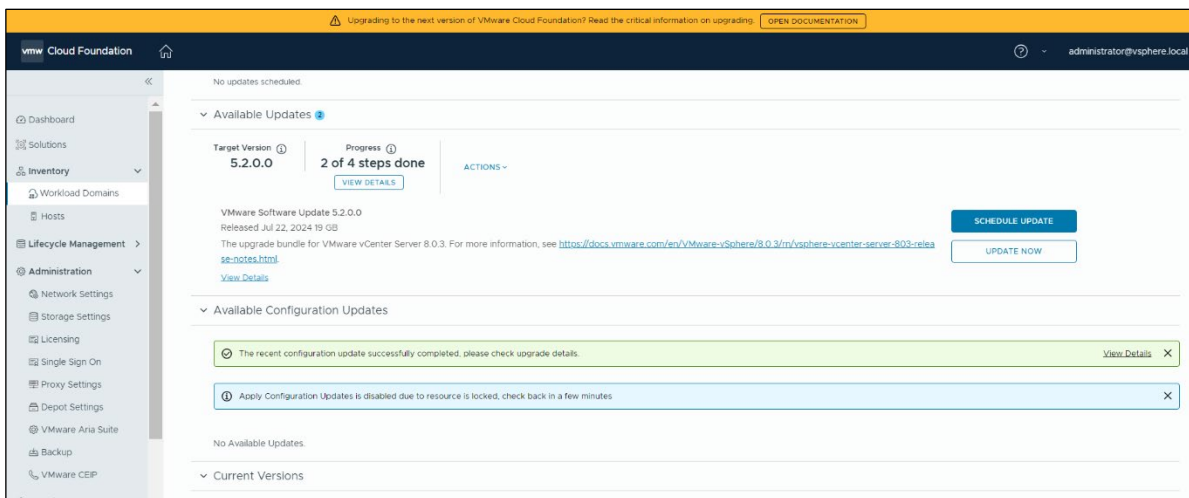


FIGURE 22. vCenter Update

5. Click **FINISH** on Review page and wait for the upgrade to complete.
6. When vCenter server is upgraded successfully, a message with a green background and check mark is displayed.



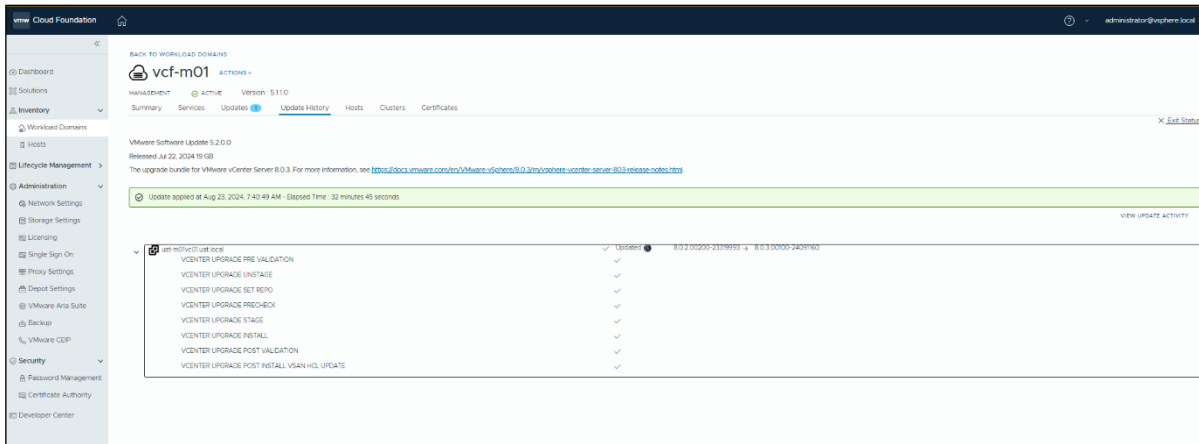


FIGURE 23. vCenter update completion

ESXi – Management Domain – vLCM Method

For the management domain using vSphere Lifecycle Manager Images, ESXi can be upgraded by creating a vSphere Lifecycle Manager image using the vSphere client. If vSphere Lifecycle Manager cluster image is enabled during the deployment of the management domain, HPE OneView and HPE OneView for VMware vCenter hardware plug-in can be used to update firmware on the vSphere cluster by including the new SPP in the vLCM cluster image.

HPE OneView and a hardware support manager called 'HPE OneView for vCenter (OV4VC)' configured as a client-plugin in vCenter help with updating firmware on ESXi hosts along with the software updates. When HPE OneView and HPE OneView for vCenter(OV4VC) is being used to perform ESXi server firmware updates, it is recommended to check OneView and OV4VC client plug-in prior to the ESXi upgrade.

For VCF 5.2, upgrade OneView and the OV4VC plug-in as per the versions recommended in software firmware matrix, <https://www.hpe.com/psnow/doc/a50011482enw>.

To know more about upgrading the OV4VC, refer to [HPE OneView for VMware vCenter 11.6.0 Installation Guide](#).

The section describes upgrading ESXi hosts in workload domains that use vSphere Lifecycle Manager Images. vSphere Lifecycle Manager image is created for upgrading ESXi hosts using the vSphere Client. During the creation of the image, ESXi version and vendor add-ons, are defined and can also optionally add components, and firmware. After you extract the vSphere Lifecycle Manager image into SDDC Manager, the ESXi image will be available for host upgrade of the management domain.

Prerequisites

- Validate that the ESXi passwords are valid.
- Ensure that the domain for which you want to perform cluster-level upgrade does not have any hosts or clusters in an error state. Resolve the error state or remove the hosts and clusters with errors before proceeding.
- NSX and vCenter Server must be upgraded before ESXi hosts can be upgraded with a vSphere Lifecycle Manager image.
- To include firmware in the vSphere Lifecycle Manager image, HPE OneView and HPE OneView for VMware vCenter must be installed and integrated with the vCenter.

TABLE 4. Cluster Image Components

Component	Update From
VMware-ESXi-8.0.3-24022510-HPE-803.0.0.11.7.0.23-Jun2024	8.0.3 (24022510)
HPE AddOn	HPE-803.0.0.11.7.0.23



Create a new cluster image

1. Log in to the management vCenter Client with SSO credentials.
2. In the vSphere Client, select the VCF Management Domain Datacenter and select **ACTIONS > New Cluster**.
3. Provide the cluster name. Click **NEXT**.
4. On the Review page click **FINISH**.

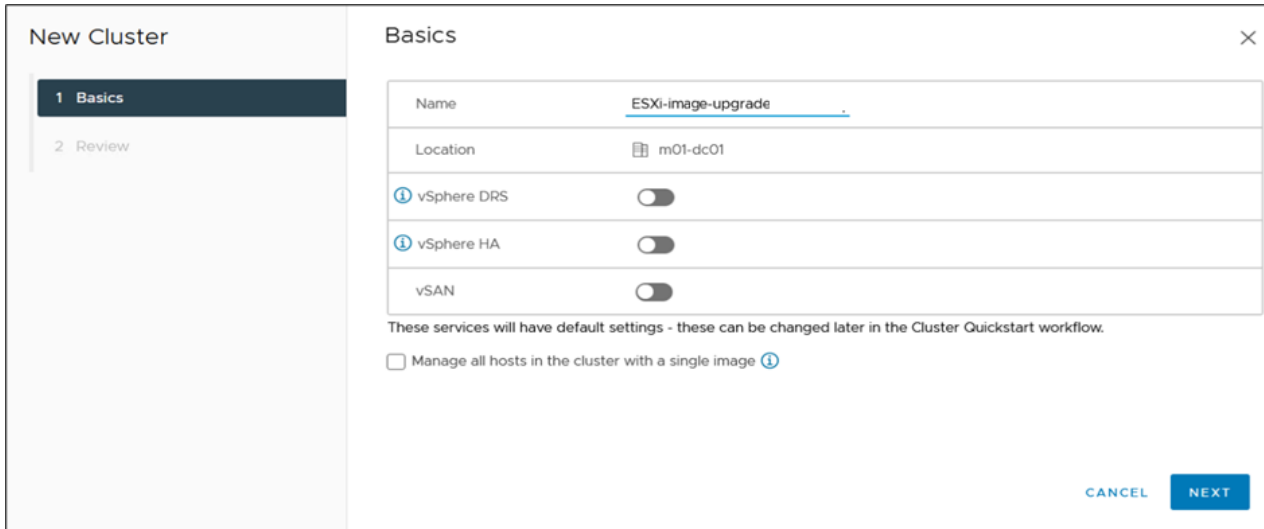


FIGURE 24. New Cluster – Basics

5. Select the new cluster created and open Updates > Images tab.
6. Click **SETUP IMAGE**.

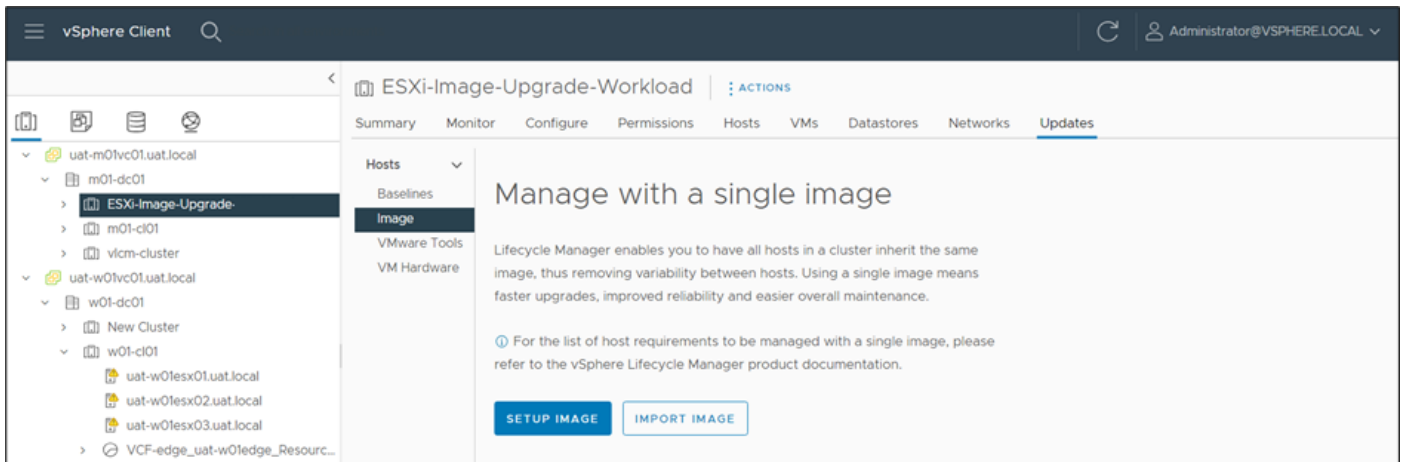


FIGURE 25. Setup Image

7. Select the ESXi Version and Vendor Addon. Click **Validate**.
8. Click **SAVE**.
9. Click **Yes, Finish Image Setup** on the dialog box.



Import the new cluster image to SDDC Manager

10. Log in to SDDC Manager UI with SSO credentials.
11. From the left navigation pane, expand Lifecycle manager and select Image Management.
12. In the Import Image tab, under Option 1, for the Select Workload Domain choose the “VCF Management Domain” name from the drop down.
13. Choose the cluster that was created in the previous step for Select Cluster.
14. Provide Cluster Image Name.
15. Click **Extract Cluster Image** as shown in Figure 26.

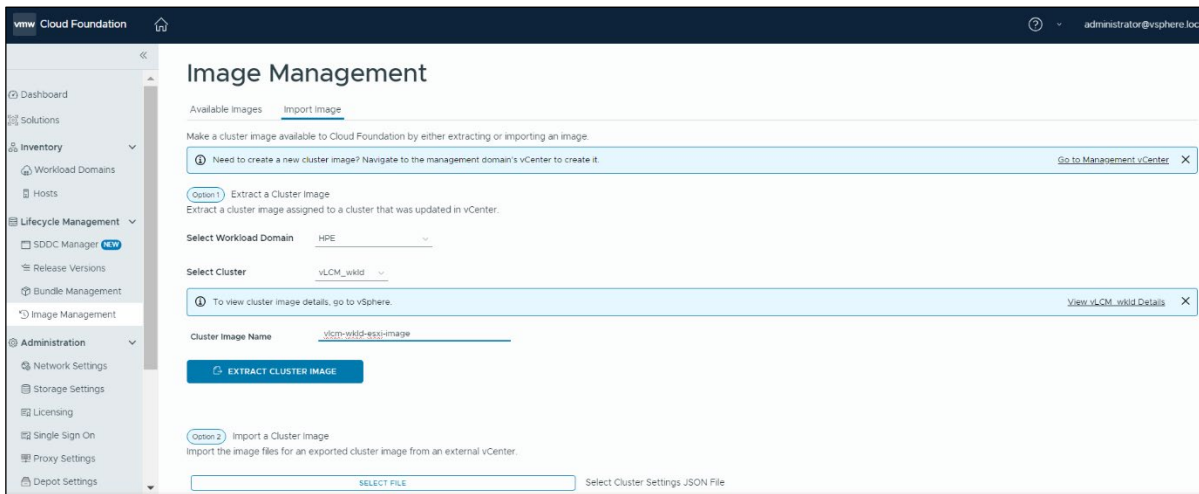


FIGURE 26. Extract cluster Image

16. Extracted cluster image is shown as an available image in SDDC Manager.

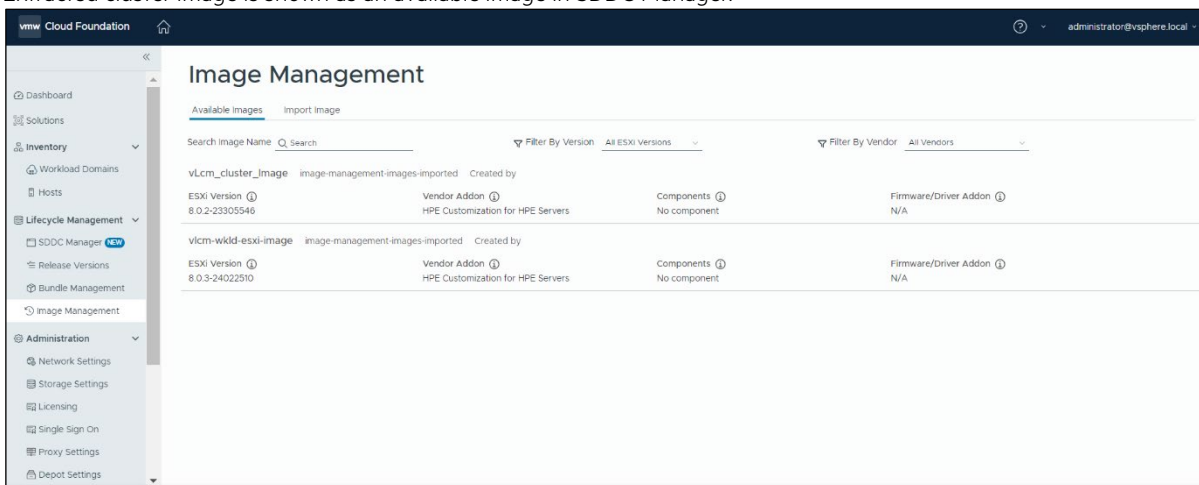


FIGURE 27. Available Images

Upgrade ESXi hosts with the new vLCM cluster image

1. Log in to SDDC Manager UI using SSO credentials.
2. Navigate to **Inventory > Workload Domains**. Click the workload domain.



3. Navigate to **Update/Patch** tab. It displays the available patches.
4. Click **Configure Update**.
5. Click **NEXT** on **Introduction** and **Select Clusters** page.

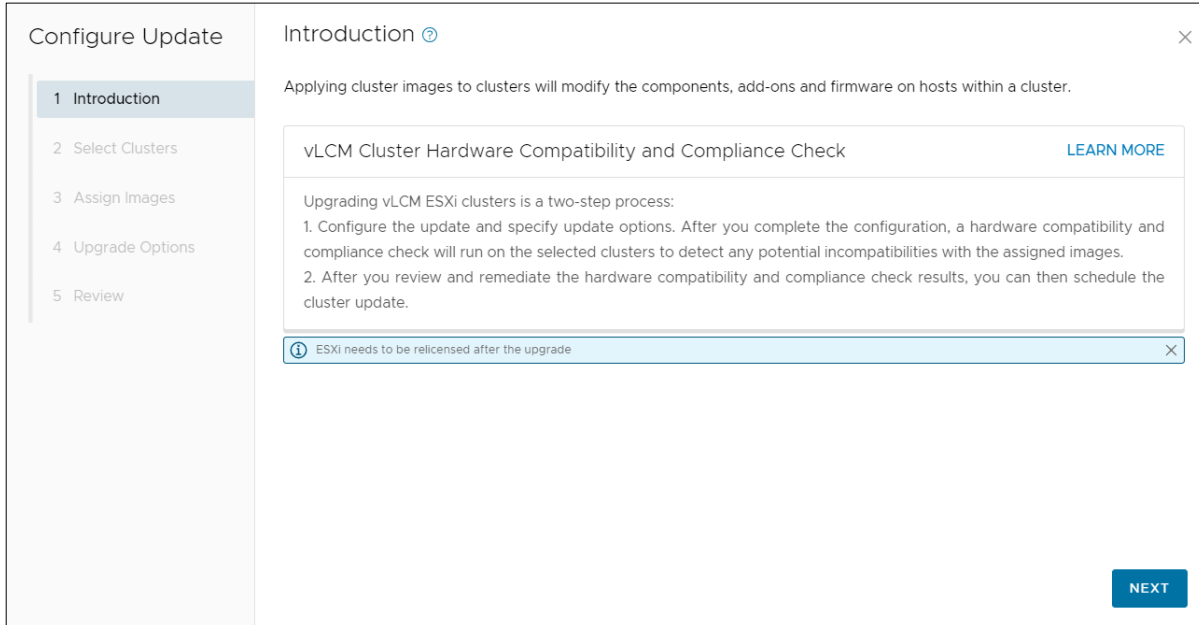


FIGURE 28. Configure Update – Introduction



FIGURE 29. Configure Update – Select Clusters

6. In Assign Image page, select the workload clusters to be updated in step 1 and choose the imported image in step 2.
7. Click **Apply Image** and then click **NEXT**.



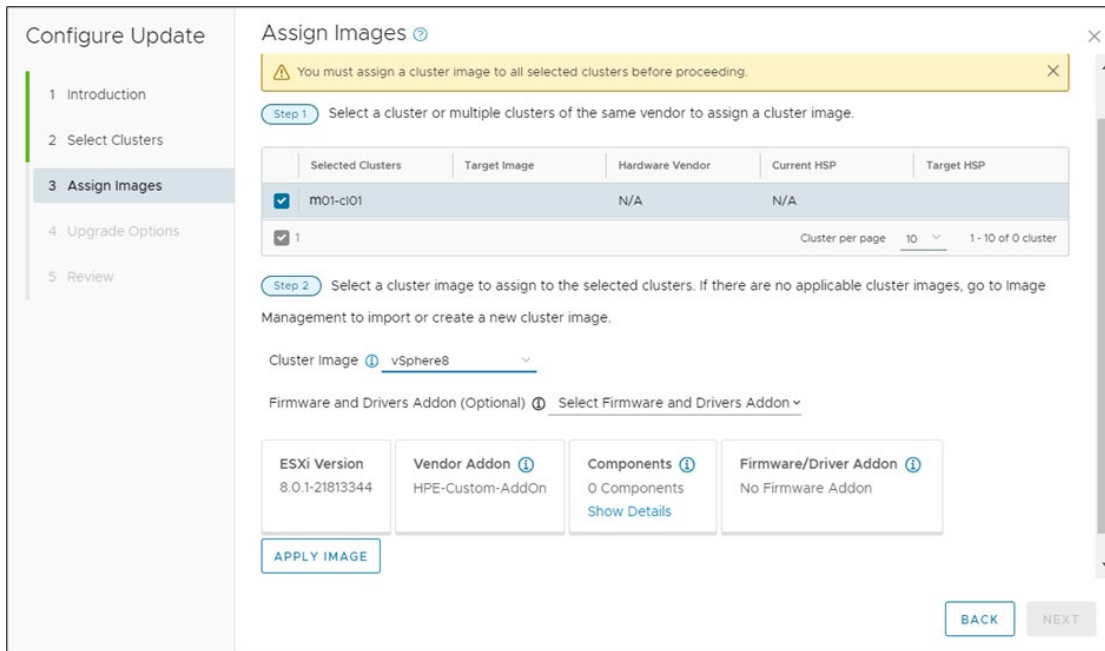


FIGURE 30. Configure Update – Apply Image

Firmware and Driver Addon should be selected to verify if an upgrade is required for the server’s firmware and drivers. The firmware upgrade requires HPE OneView and HPE OneView for VMware vCenter integration to be configured in vCenter server.

8. Based on your workloads, take note of the following options during upgrade.

By default, the selected clusters are upgraded in parallel. If you selected more than ten clusters to be upgraded, the first ten are upgraded in parallel and the remaining clusters are upgraded sequentially. Select **Enable sequential cluster upgrade**, to upgrade all selected clusters sequentially.

Enable Quick Boot is an option that allows Update Manager to reduce the upgrade time by skipping the physical reboot of the host. Quick Boot should not be enabled if there is an SPP update needed to happen at the same time.

Evacuate offline VMs generally refers to moving or shut down of virtual machines (VMs) to a safe state or location to allow for maintenance or upgrades of the underlying hardware or software without risking data loss or VM downtime. Selecting Evacuate Offline VMs is not necessary if the VMs are not powered on as it adds a significant amount of time to the process for an offline VM

click **NEXT** on **Upgrade Options** tab.



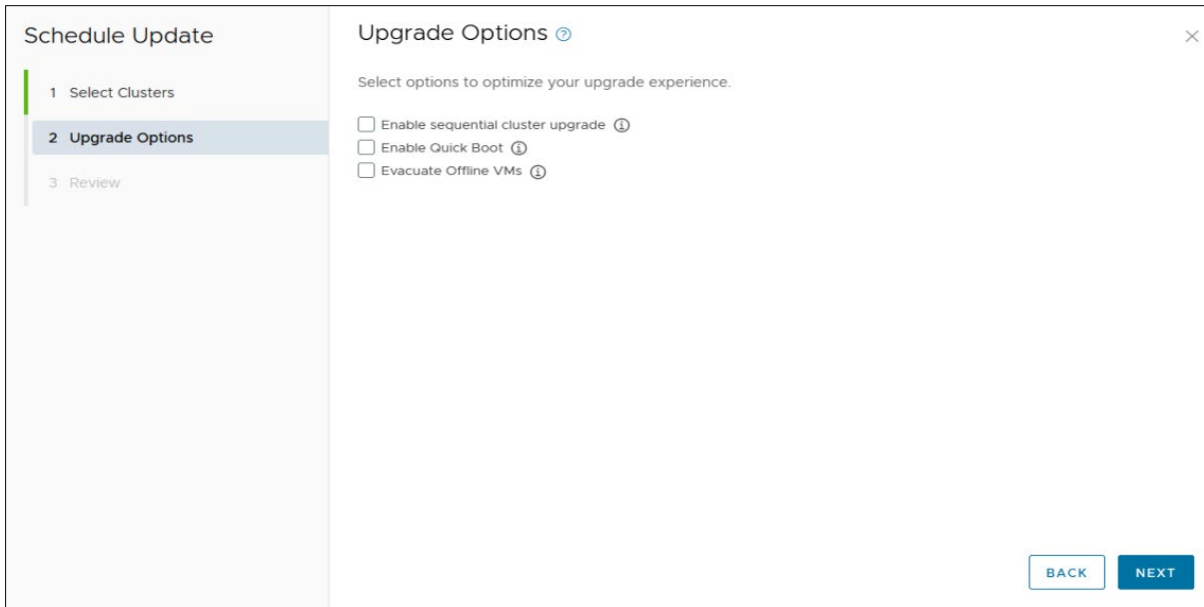


FIGURE 31. Configure Update – Upgrade Options

9. Click **FINISH** on the **Review** tab.

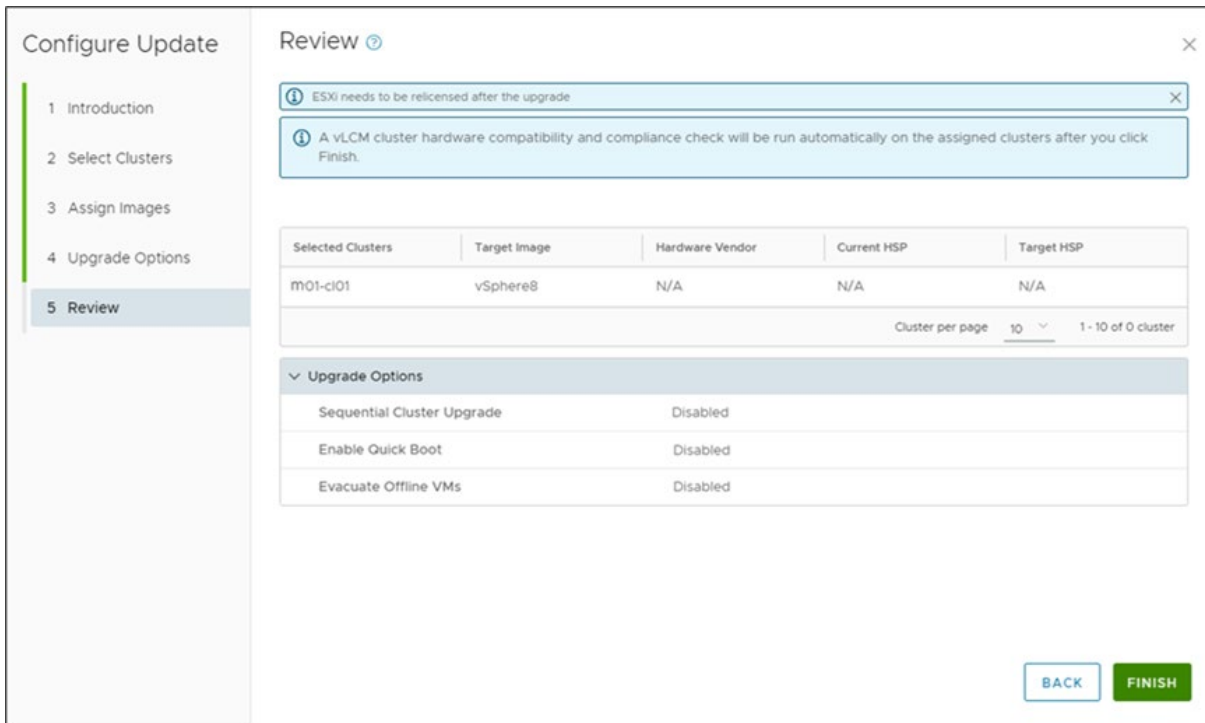


FIGURE 32. Configure Update – Review

10. Cluster image hardware compatibility and compliance check will start automatically. Resolve any reported issues before proceeding.



11. After the pre-check is successful, click **Schedule Update** to begin update. Click **NEXT** on **Review** tab.

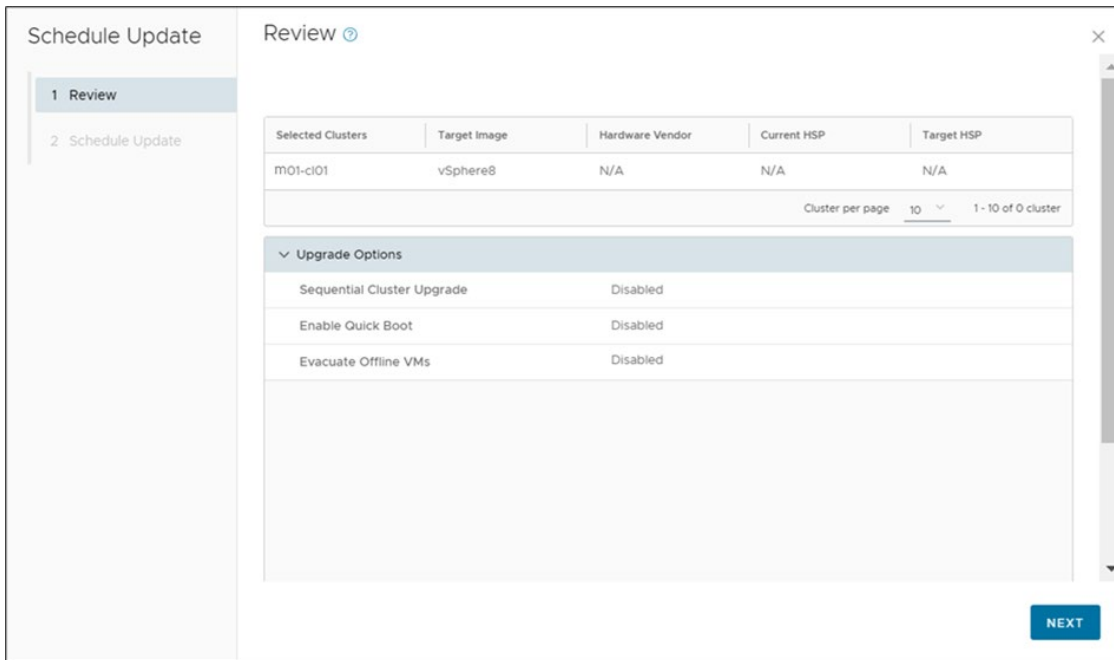


FIGURE 33. Schedule Update – Review

12. Select **Upgrade Now** radio button and click **FINISH** to complete the ESXi host upgrade.

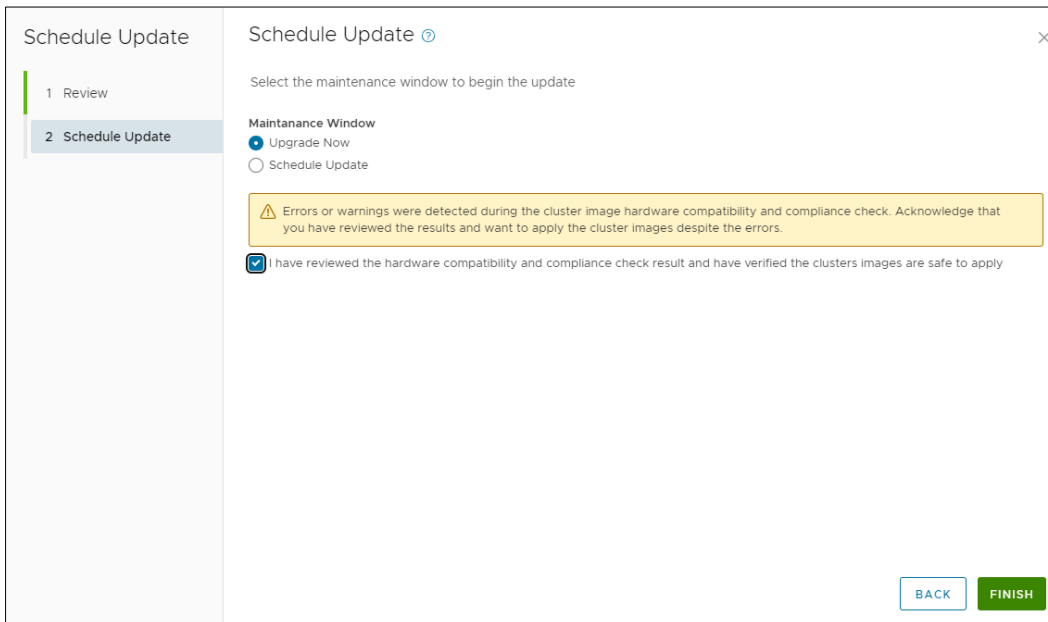


FIGURE 34. Schedule Update



This completes the Management domain upgrade of VMware Cloud Foundation 5.2. Figure 35 and 36 shows the updated components of the VMware Cloud Foundation management domain.

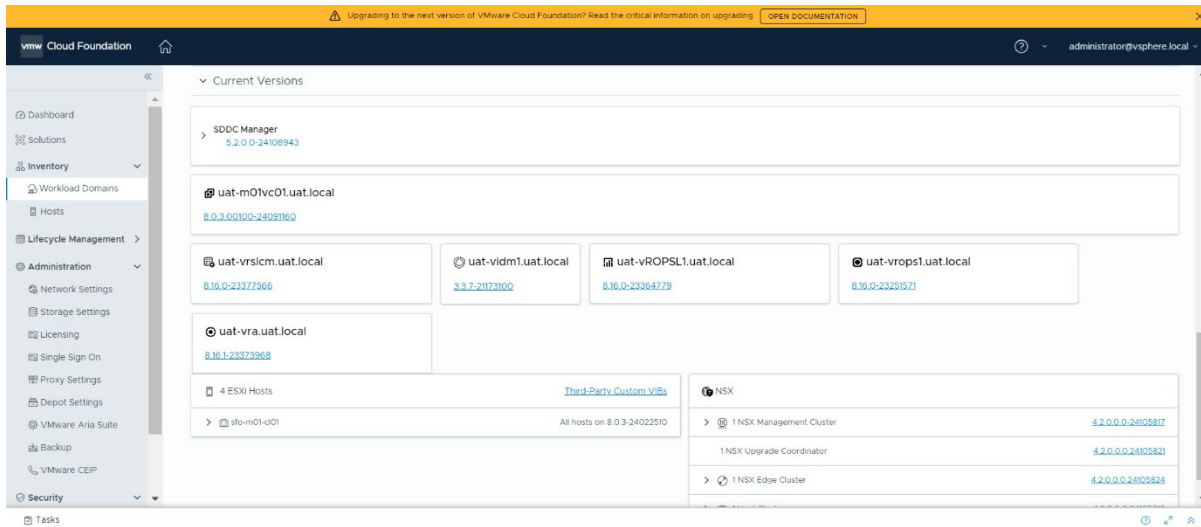


FIGURE 35. Management Domain updated components

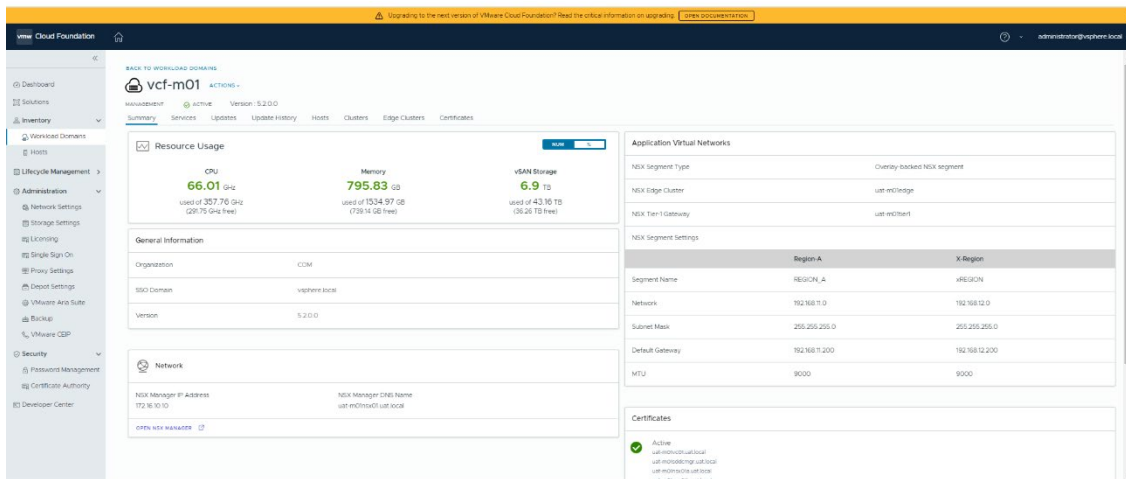


FIGURE 36. Updated VMware Cloud Foundation version

UPGRADE TO VMWARE CLOUD FOUNDATION 5.2 - VI WORKLOAD DOMAIN

The management domain in your environment must be upgraded before you upgrade VI workload domains. Within a VI workload domain, components must be upgraded in the following order as orchestrated by SDDC Manager workflow.

1. NSX
2. vCenter Server.
3. ESXi.



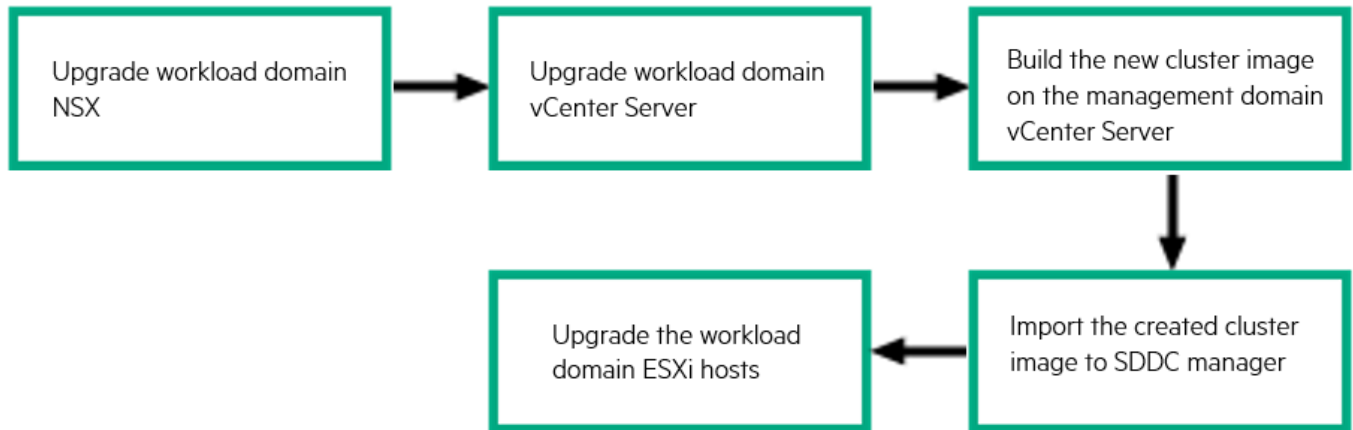


FIGURE 37. Workload domain Upgrade Workflow

Precheck – Workload Domain

You must perform a precheck before applying an update or upgrade bundle to ensure that the environment is ready for the update.

1. In the navigation pane, click **Inventory > Workload Domains**.
2. On the Workload Domains page, click the workload domain where you want to run the precheck.
3. On the domain summary page, click the **Updates/Patches** tab.

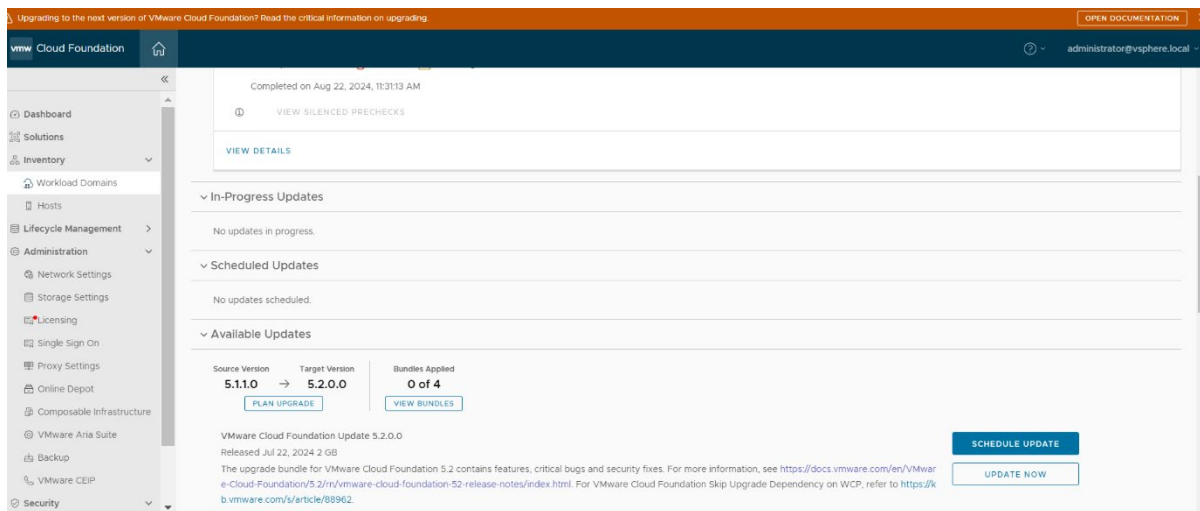


FIGURE 38. Workload domain Update/Patches tab



- Click **PRECHECK** to validate that the environment is ready to be upgraded. After the precheck begins, a message appears indicating the time at which the precheck was started.
- Click **View Status** to see detailed tasks and their status.

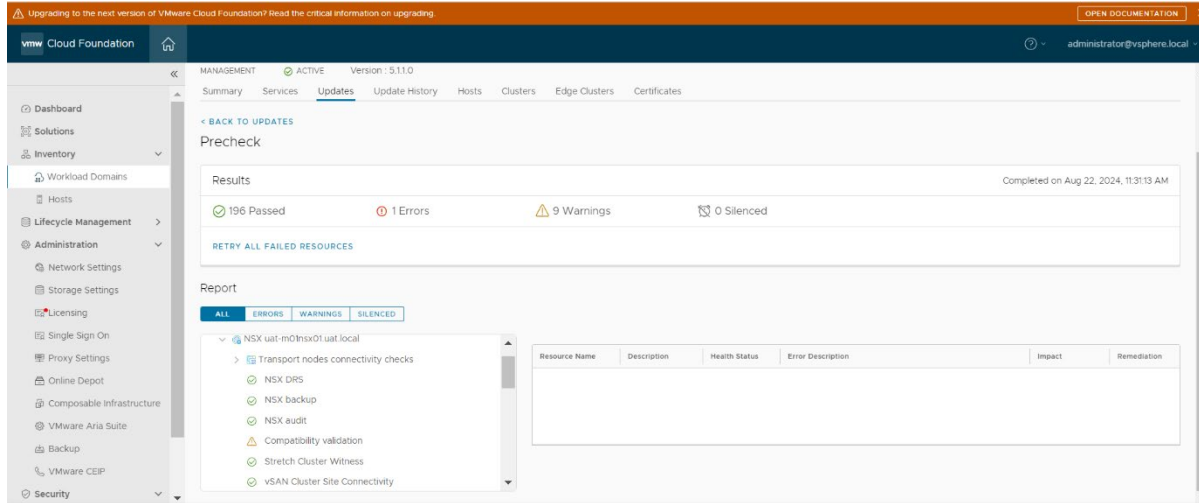


FIGURE 39. Precheck results

- To see details for a task, click the **Expand** arrow.
 - If a precheck task failed, fix the issue, and click **Retry Precheck** to run the task again. You can also click **Precheck Failed Resources** to retry all failed tasks.
 - After Lifecycle Management is restarted, run the precheck again.
- Click **Exit Details** to go back to **Update/Patches** tab.

NSX – Workload Domain

Upgrading NSX Data Center involves the following components:

- Upgrade Coordinator
- NSX Edge clusters
- Host clusters
- NSX Manager cluster

Prerequisites

- Ensure the upgrade bundle for NSX Data Center is downloaded in the SDDC Manager.
- Validate that the NSX Manager password is valid.
- Back up the NSX Data Center configuration and download the technical support logs.
- Ensure that the appropriate communication ports are open between the NSX Edge nodes and NSX Manager.
- Ensure there are no active alarms on hosts or vSphere clusters using the vSphere Client.

Procedure

- In the navigation pane, click **Inventory > Workload Domains**.
- On the Workload Domains page, click the workload domain that is upgrading and then click the **Updates/Patches** tab.



3. In the **Available Updates** section, Click **Plan Upgrade**.
4. Select Cloud Foundation 5.2.

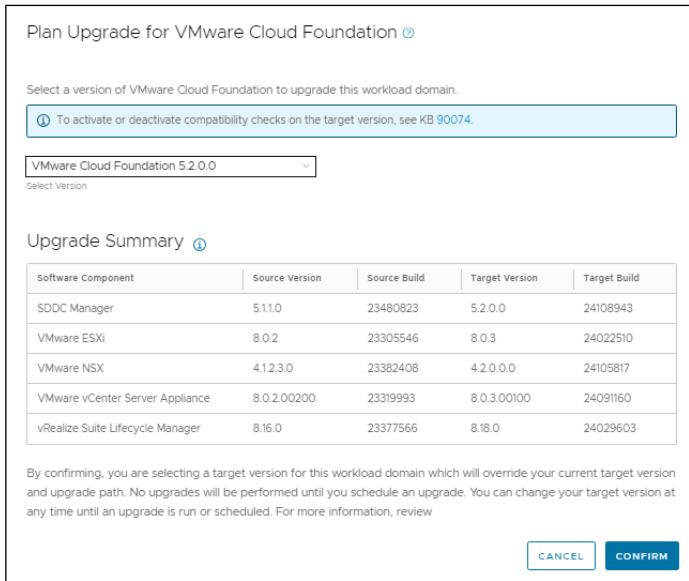


FIGURE 40. Plan Upgrade for VMware Cloud Foundation workload domain

5. Review the Upgrade plan and click **CONFIRM**.
6. In the Available Updates section, click UPDATE NOW next to the VMware Software NSX bundle.

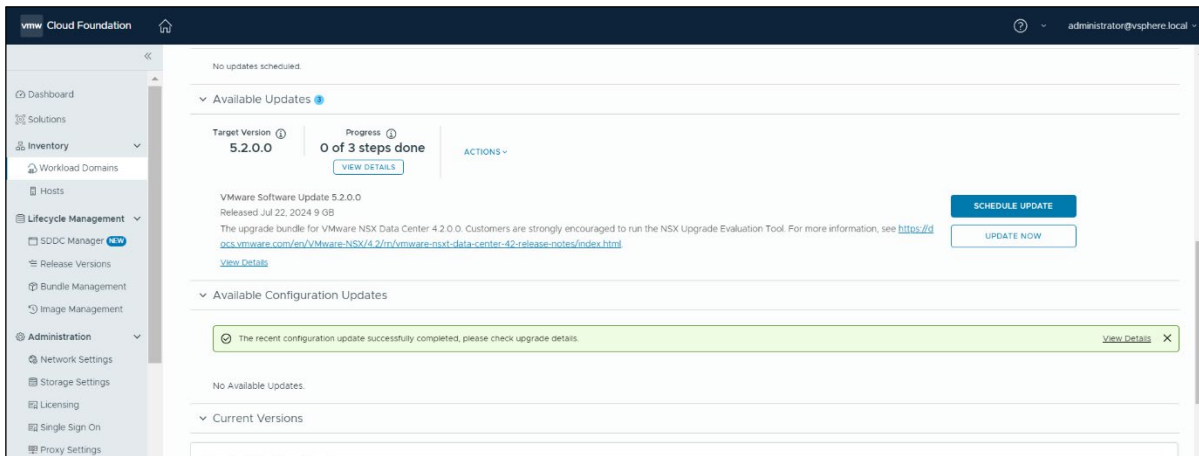


FIGURE 41. NSX Update

7. By default, all NSX Edge clusters are upgraded. To select specific NSX Edge clusters, select the Upgrade only NSX Edge clusters checkbox and select the **Enable edge selection** option. Then select the NSX Edges you want to upgrade.
8. Click **NEXT**.



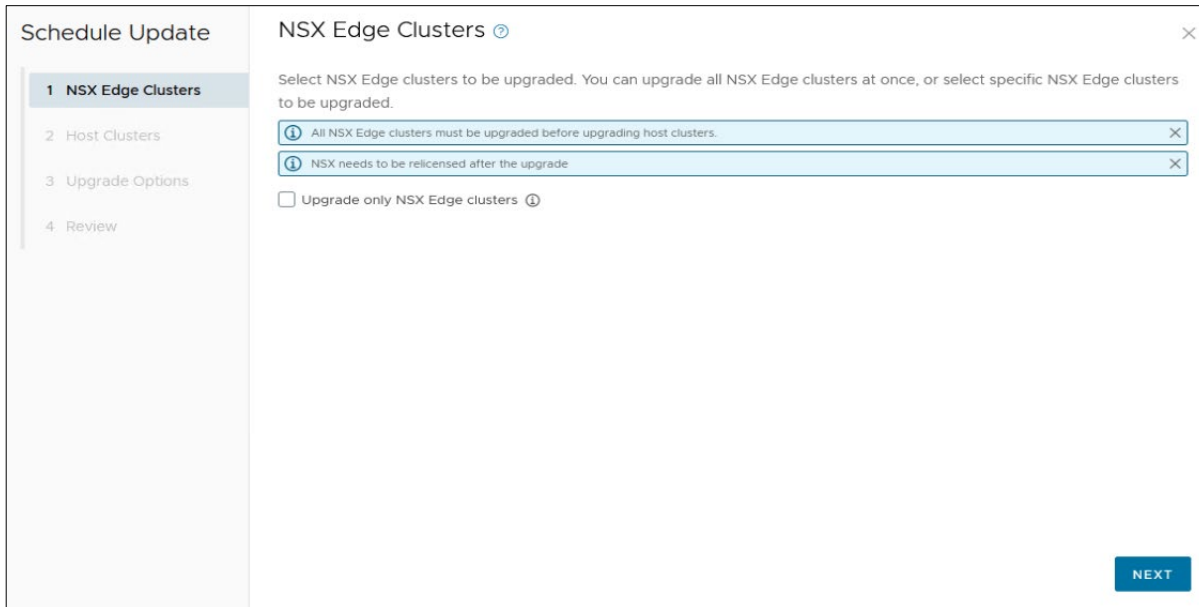


FIGURE 42. NSX Schedule Update – NSX Edge Clusters

- By default, all vSphere clusters NSX components across all workload domains are upgraded. If you want to select specific vSphere clusters to be upgraded, turn on the **Upgrade all host clusters** setting. Host clusters are upgraded after all Edge clusters have been upgraded.
- Click **NEXT**.

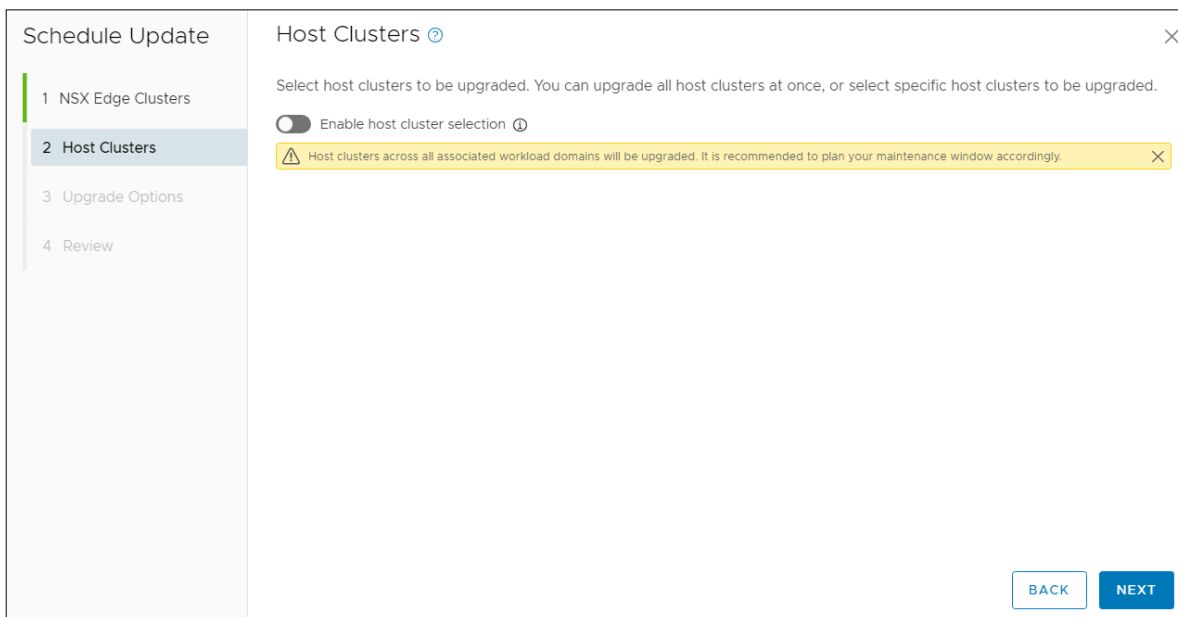


FIGURE 43. NSX Schedule Update – Host Clusters

- On the **Upgrade Options** dialog, select the upgrade optimizations as required and click **NEXT**. By default, Edge clusters and host clusters are upgraded in parallel. You can enable sequential upgrade by selecting the relevant checkbox.



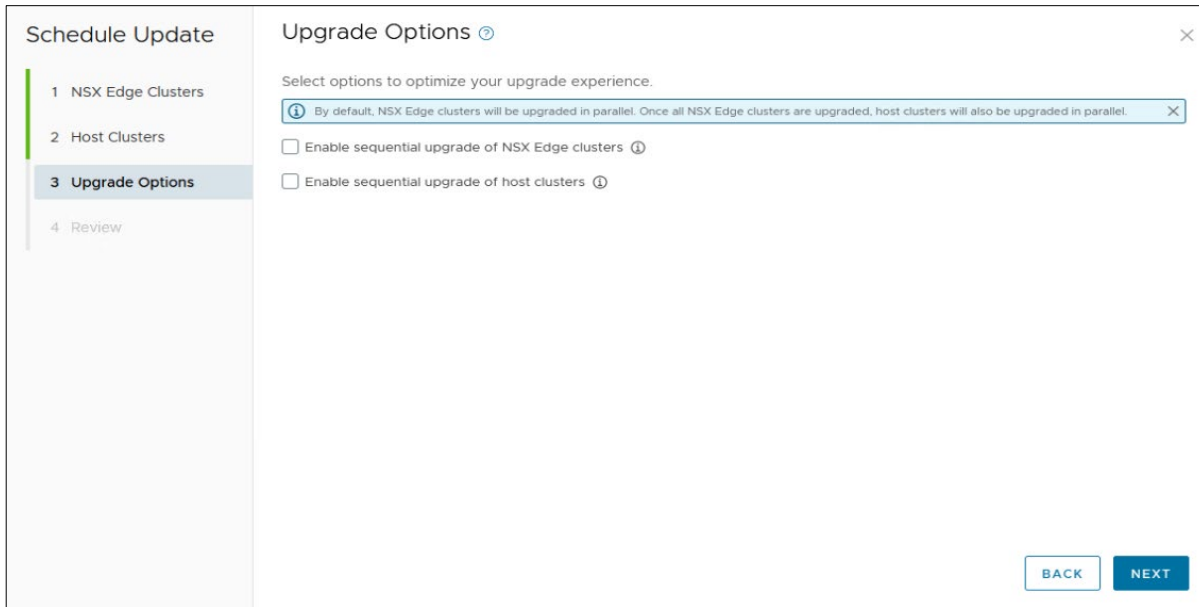


FIGURE 44. NSX Schedule Update – Upgrade Options

12. On the Review page, review your settings and click **FINISH**.

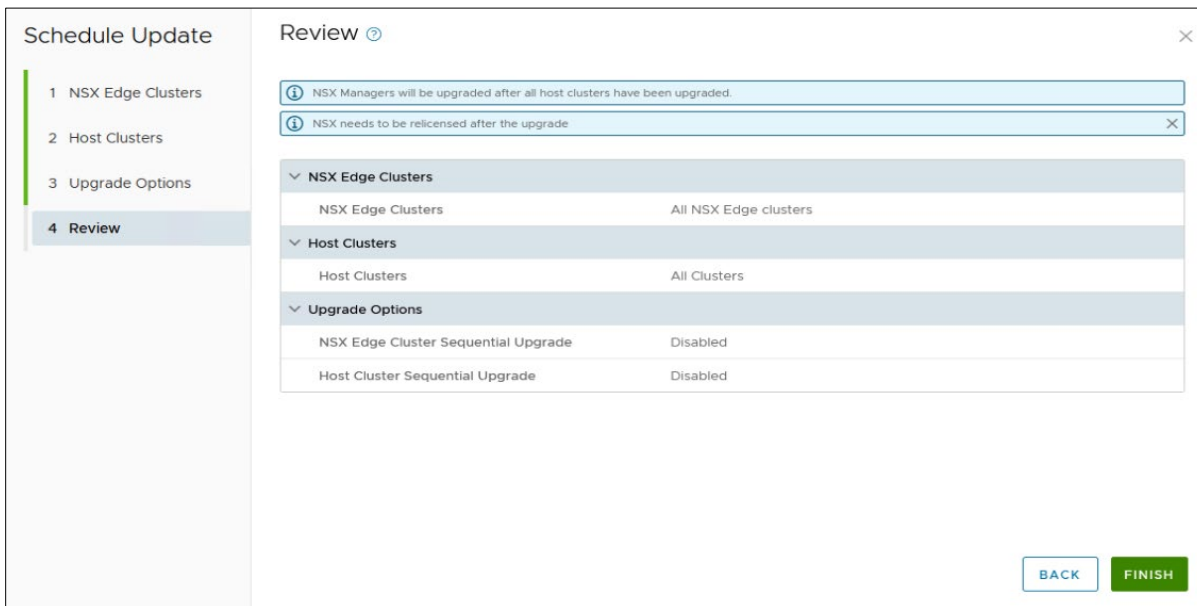


FIGURE 45. NSX Schedule Update – Review

13. The NSX Data Center upgrade begins, and the upgrade components are displayed.

14. When all NSX Data Center workload components are upgraded successfully, a message with a green background and check mark is displayed.



vCenter - Workload domain

The upgrade bundle for VMware vCenter Server is used to upgrade the vCenter Servers managed by SDDC Manager. Upgrade vCenter Server in the management domain before upgrading vCenter Server in VI workload domains.

Procedure

1. Log in to the SDDC Manager UI using `https://<sddc-manager-hostname>` with SSO credentials.
2. In the navigation pane, click **Inventory > Workload Domains**.
3. On the Workload Domains page, click the domain you are upgrading and then click the **Updates/Patches** tab.
4. Click **Precheck** to run the upgrade precheck.
5. Resolve any issues before proceeding with the upgrade.

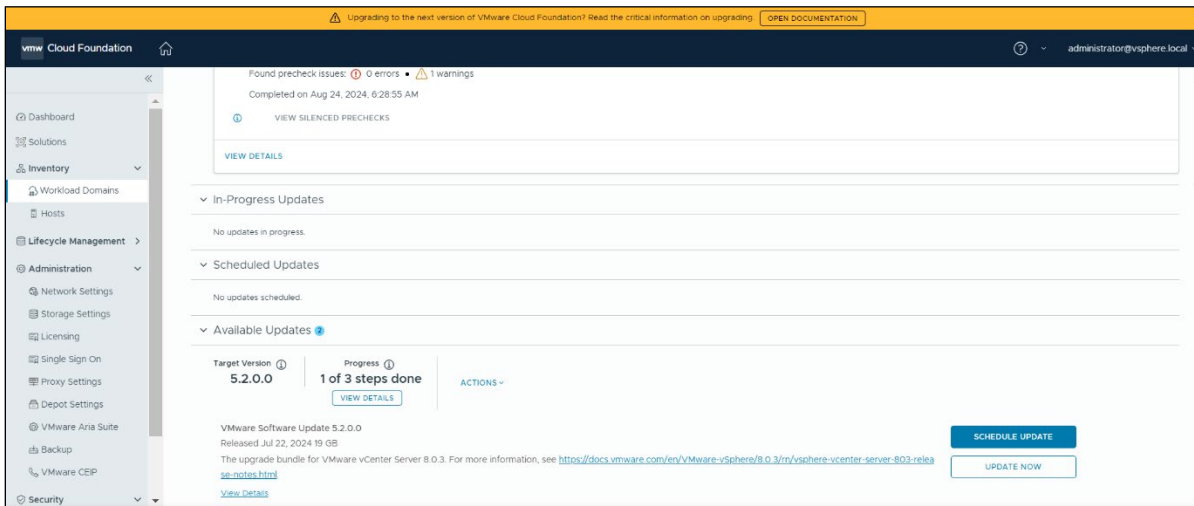


FIGURE 46. Workload Domain vCenter Server upgrade

6. In the Available Updates section, select the target release.
7. Click **Update Now** next to the vCenter upgrade bundle.
8. After the upgrade is completed, a green bar with a check mark is displayed.

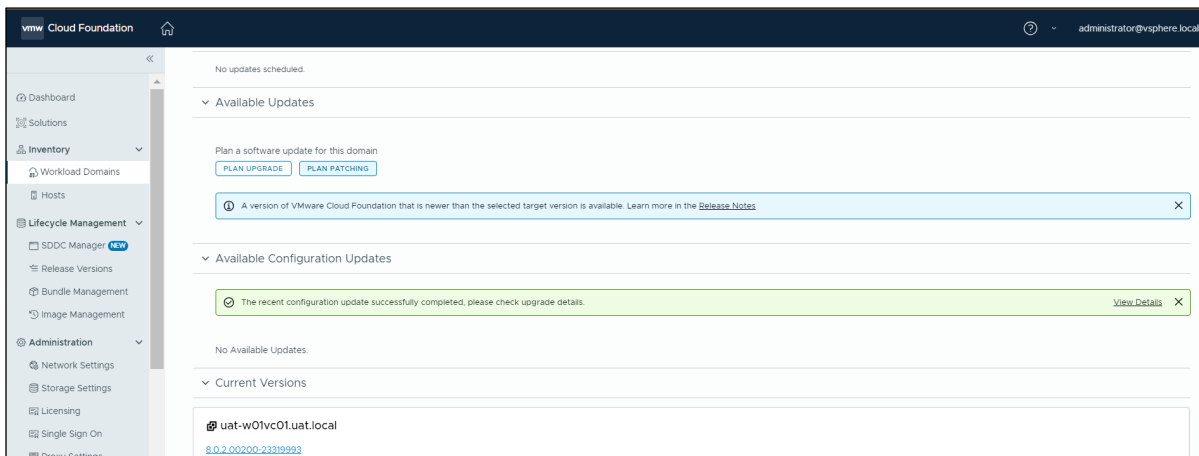


FIGURE 47. Workload Domains upgrade completion



ESXi – Workload domain – vLCM Method

For VMware Cloud Foundation workload domain using vSphere Lifecycle Management Image, ESXi can be upgraded by creating a vSphere Lifecycle Manager image using the vSphere client. vSphere Lifecycle Manager images can also be used to perform firmware updates on the ESXi hosts in a cluster. Using a vSphere Lifecycle Manager image simplifies the host update operation by updating both the software and the firmware in a single operation.

HPE OneView and a hardware support manager called 'HPE OneView for vCenter (OV4VC)' configured as a client-plugin in vCenter help with updating firmware on ESXi hosts along with the software updates. When HPE OneView and HPE OneView for vCenter(OV4VC) is being used to perform ESXi server firmware updates, it is recommended to check OneView and OV4VC client plug-in prior to the ESXi upgrade. For VCF 5.2, upgrade OneView and the OV4VC plug-in as per the versions recommended in software firmware matrix, <https://www.hpe.com/psnow/doc/a50011482enw>

To know more about upgrading the OV4VC, refer to [HPE OneView for VMware vCenter 11.6.0 Installation Guide](#) The section describes upgrading ESXi hosts in workload domains that use vSphere Lifecycle Manager Images.

Create a vSphere Lifecycle Manager image for upgrading ESXi hosts using the vSphere Client. During the creation of the image, ESXi version and vendor add-ons can be defined, and can also optionally add components, and firmware. After you extract the vSphere Lifecycle Manager image into SDDC Manager, the ESXi image will be available for host upgrade of the relevant VI workload domains.

TABLE 5. Cluster Image Components

Component	Version
VMware-ESXi-8.0.3-24022510-HPE-803.0.0.11.7.0.23-Jun2024	8.0.3 (24022510)
.HPE Add-on	HPE-803.0.0.11.7.0.23

Prerequisites

- Validate that the ESXi passwords are valid.
- Ensure that the domain for which you want to perform cluster-level upgrade does not have any hosts or clusters in an error state. Resolve the error state or remove the hosts and clusters with errors before proceeding.
- NSX and vCenter Server must be upgraded before ESXi hosts can be upgraded with a vSphere Lifecycle Manager image.
- To include firmware in the vSphere Lifecycle Manager image, HPE OneView and HPE OneView for VMware vCenter must be installed and integrated with the vCenter..

Create a new cluster image

1. Log in to the management vCenter Client with SSO credentials.
2. In the vSphere Client, select the VCF Management Domain Datacenter and select **ACTIONS > New Cluster**.
3. Provide the cluster name. Click **NEXT**.
4. On the Review page click **FINISH**.



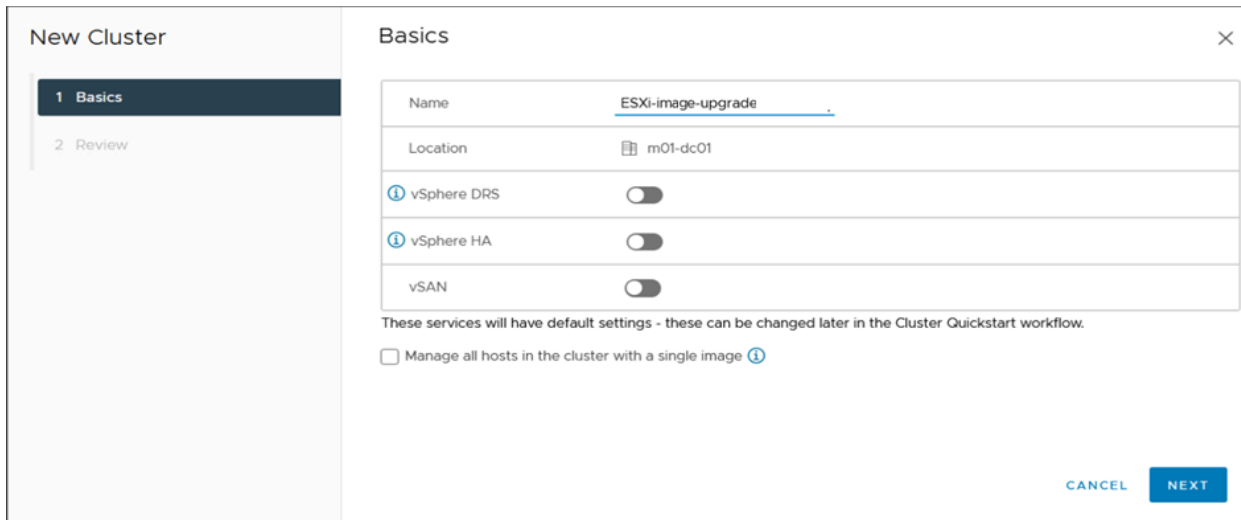


FIGURE 48. New Cluster – Basics

5. Select the new cluster created and open **Updates > Images** tab.
6. Click **SETUP IMAGE**.

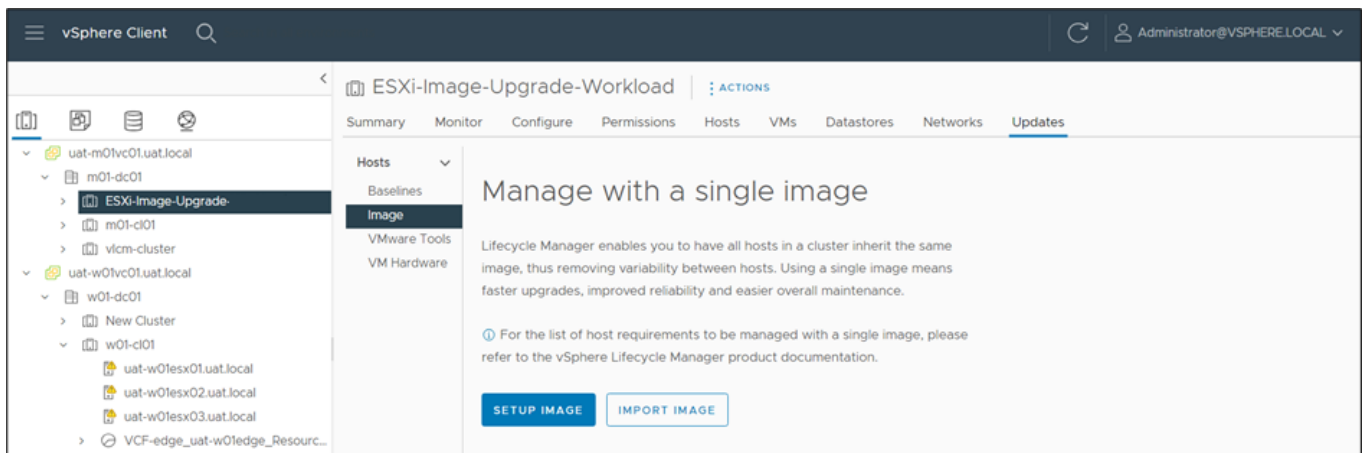


FIGURE 49. Setup Image

7. Select the ESXi Version and Vendor Addon. Click **Validate**.
8. Click **SAVE**.
9. Click **Yes, Finish Image Setup** on the dialog box.

Import the new cluster image to SDDC Manager

1. Log in to SDDC Manager UI with SSO credentials.
2. From the left navigation pane, expand Lifecycle manager and select **Image Management**.
3. In the **Import Image** tab, under Option 1, for the **Select Workload Domain** choose the “**VCF Management Domain**” name from the drop down.
4. Choose the cluster that was created in the previous step for **Select Cluster**.
5. Provide Cluster Image Name



6. Click **Extract Cluster Image** as shown in Figure 41.

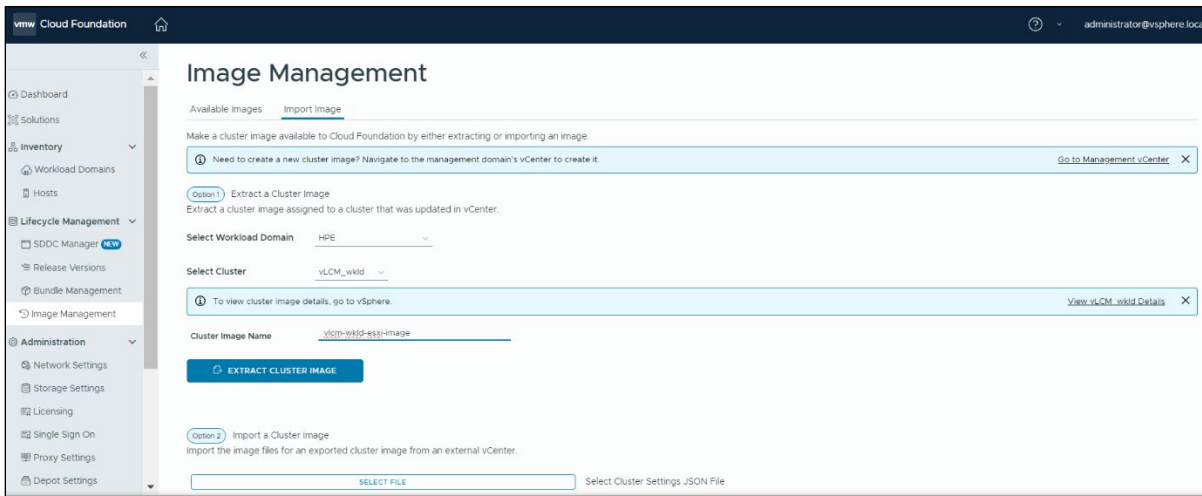


FIGURE 50. Extract cluster Image

7. Extracted cluster image is shown as an available image in SDDC Manager.

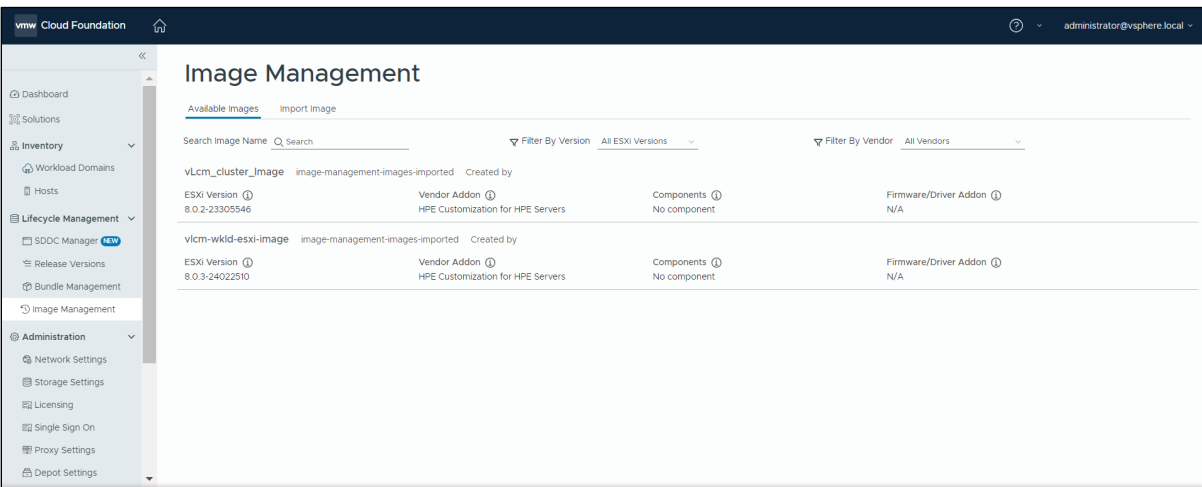


FIGURE 51. Available Images

Upgrade ESXi hosts with the new vLCM cluster image

1. Log in to SDDC Manager UI using SSO credentials.
2. Navigate to **Inventory > Workload Domains**. Click the workload domain.
3. Navigate to **Update/Patch** tab. It displays the available patches.
4. Click **Configure Update**.
5. Click **NEXT** on **Introduction** and **Select Clusters** page.



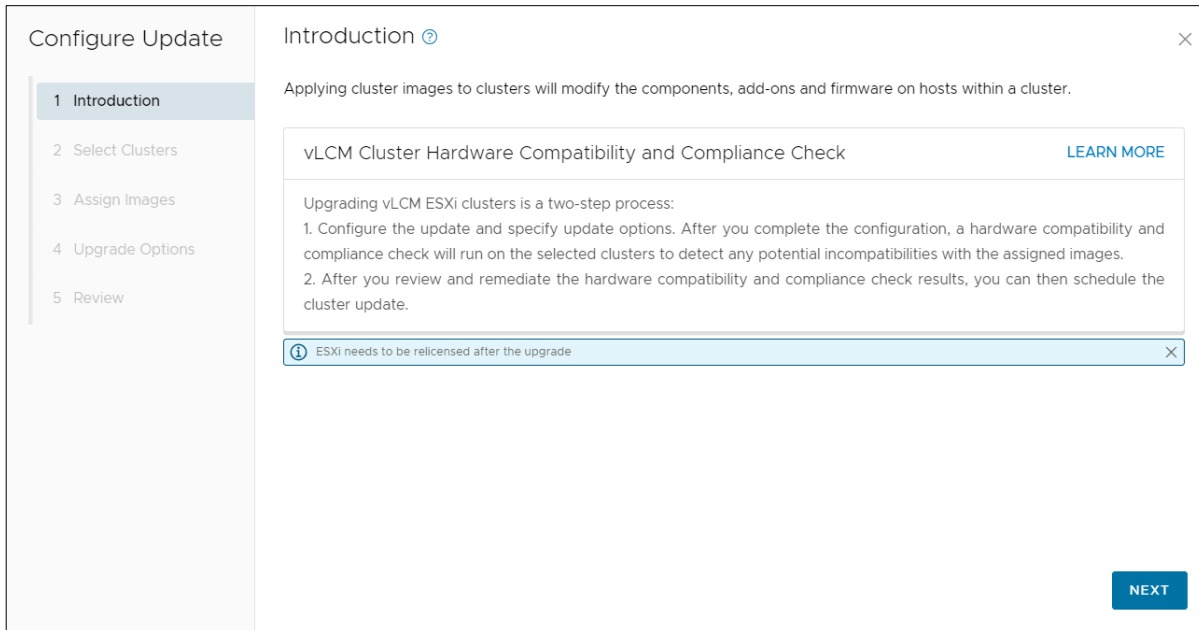


FIGURE 52. Configure Update – Introduction



FIGURE 53. Configure Update – Select Clusters

6. In Assign Image page, select the workload clusters to be updated in step 1 and choose the imported image in step 2.
7. Click **Apply Image** and then click **NEXT**.



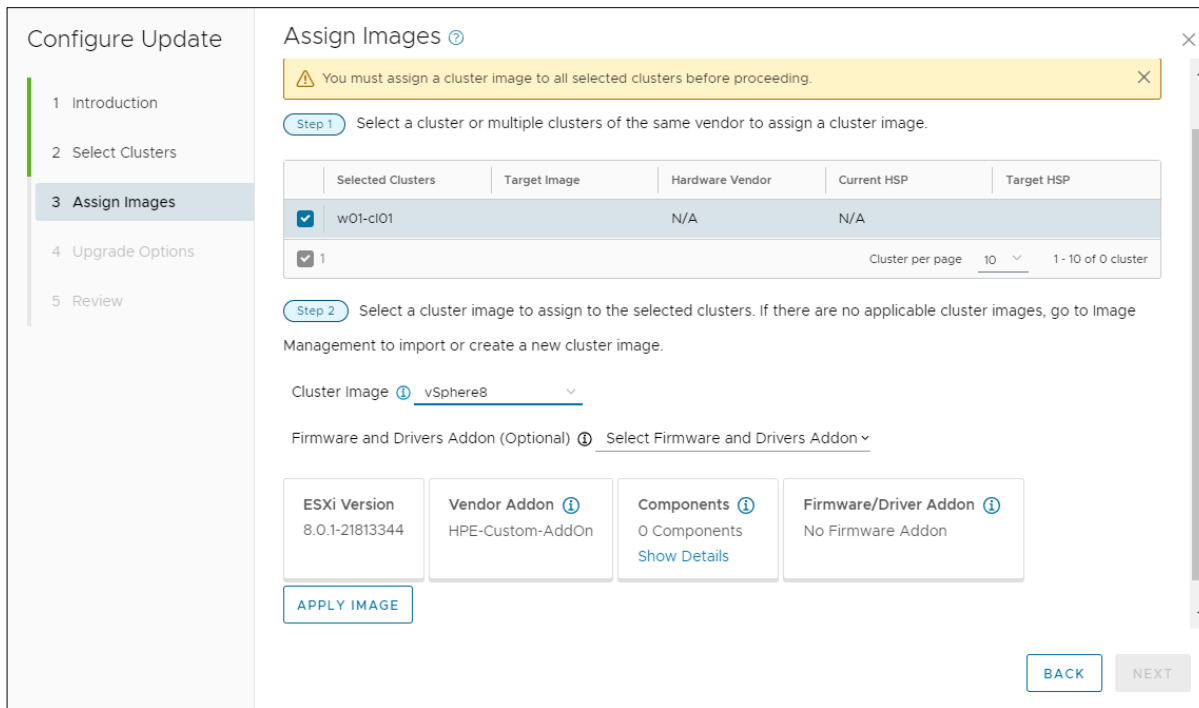


FIGURE 54. Configure Update – Apply Image

Firmware and Driver Addon should be selected to verify if an upgrade is required for the servers' firmware and drivers. The firmware upgrade requires HPE OneView and HPE OneView for VMware vCenter integration to be configured in vCenter server.

8. Based on your workloads, take note of the following options during upgrade.

By default, the selected clusters are upgraded in parallel. If you selected more than ten clusters to be upgraded, the first ten are upgraded in parallel and the remaining clusters are upgraded sequentially. Select **Enable sequential cluster upgrade**, to upgrade all selected clusters sequentially.

Enable Quick Boot is an option that allows Update Manager to reduce the upgrade time by skipping the physical reboot of the host. Quick Boot should not be enabled if there is an SPP update needed to happen at the same time.

Evacuate offline VMs generally refers to moving or shut down of virtual machines (VMs) to a safe state or location to allow for maintenance or upgrades of the underlying hardware or software without risking data loss or VM downtime. Selecting Evacuate Offline VMs is not necessary if the VMs are not powered on as it adds a significant amount of time to the process for an offline VM

9. Click **NEXT** on **Upgrade Options** tab.



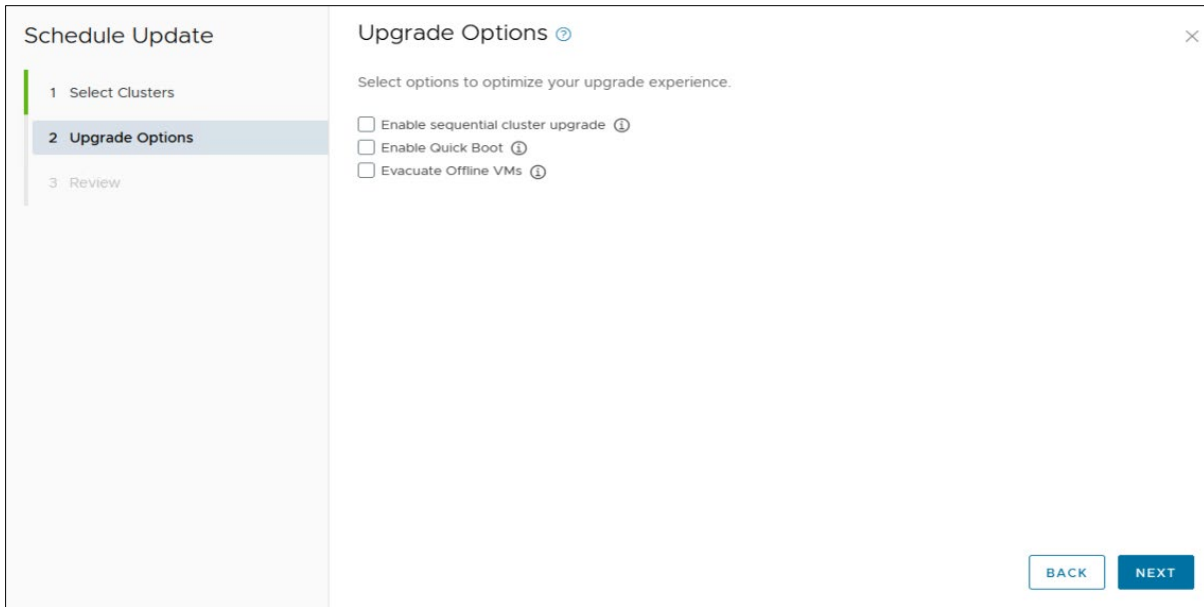


FIGURE 55. Configure Update – Upgrade Options

10. Click **FINISH** on the **Review** tab.

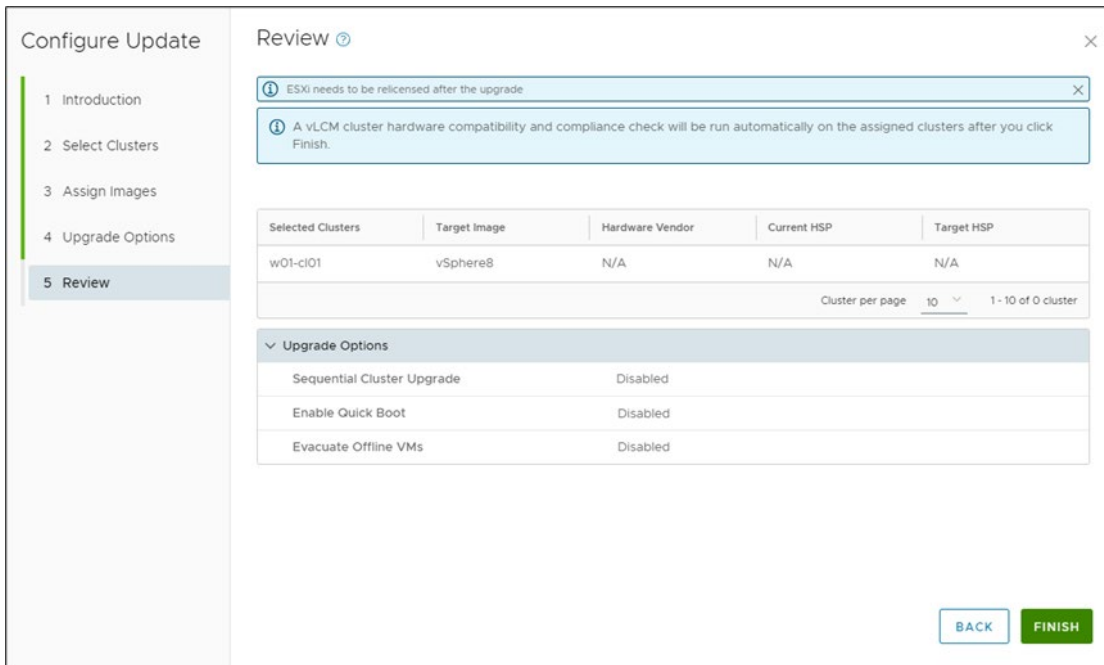


FIGURE 56. Configure Update – Review

11. Cluster image hardware compatibility and compliance check will start automatically. Resolve any reported issues before proceeding.

12. After the pre-check is successful, click **Schedule Update** to begin update. Click **NEXT** on **Review** tab.



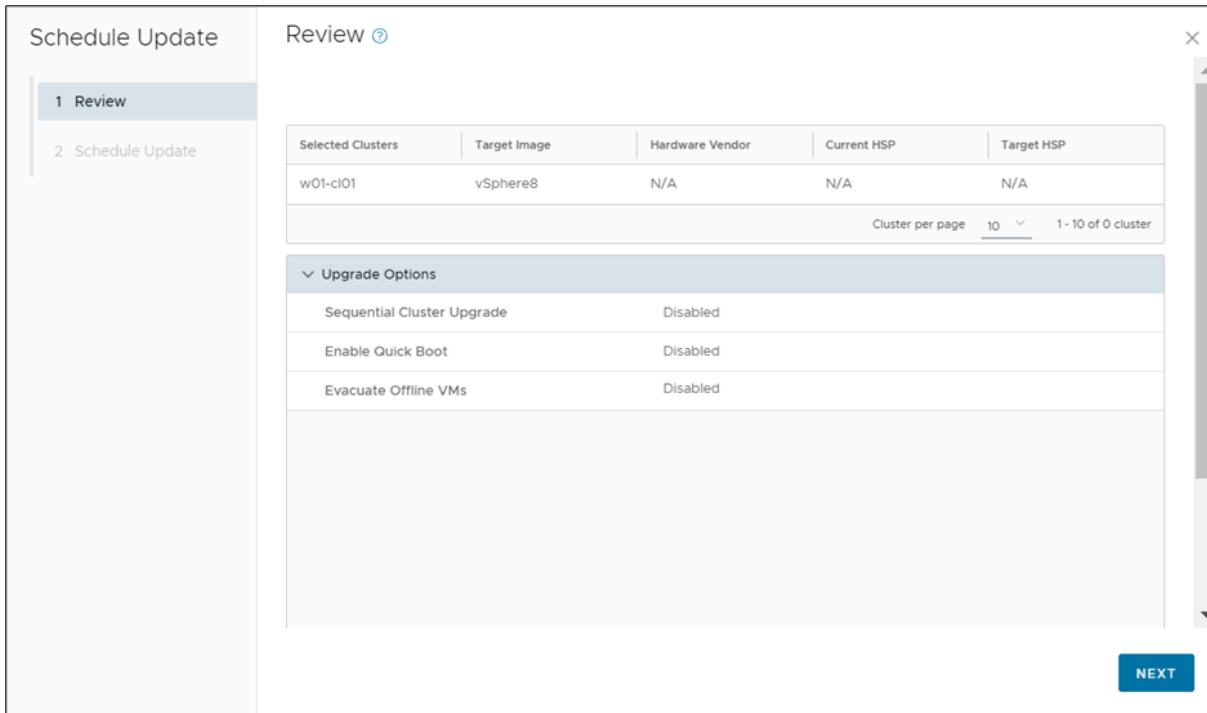


FIGURE 57. Schedule Update – Review

13. Select **Upgrade Now** radio button and click **FINISH** to complete the ESXi host upgrade.

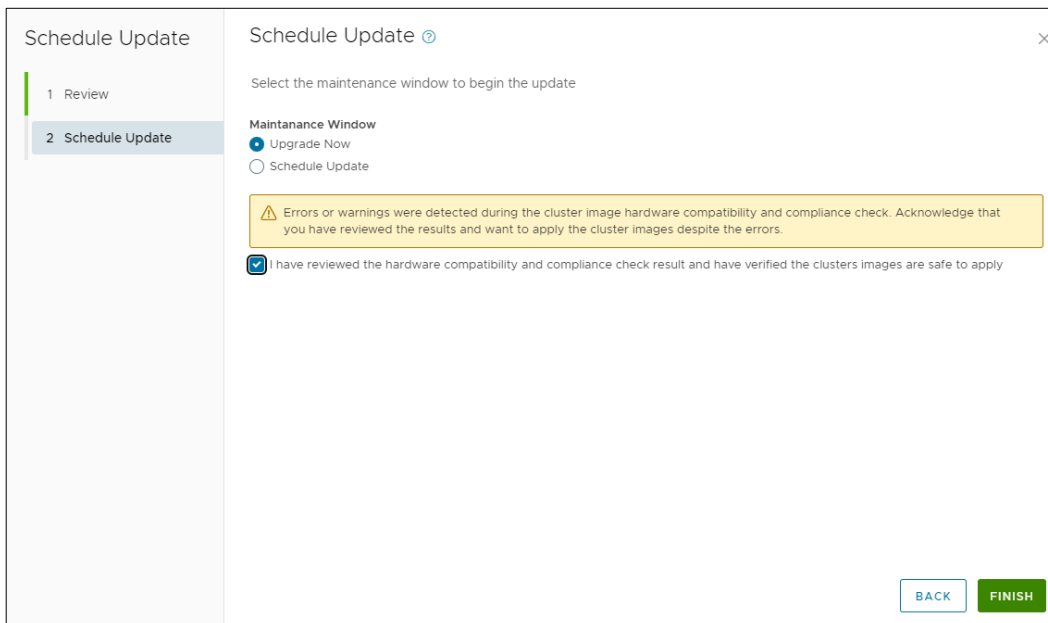


FIGURE 58. Schedule Update



POST CHECKS

Supportability and Serviceability Utility Health Check

These SoS commands are used for checking the health status of various components or services, including connectivity, compute, storage, database, workload domains, passwords, certificates, and networks.

1. Log in to the SDDC Manager appliance by using a Secure Shell (SSH) client as user 'vcf'.
2. Switch to the root user by running the **su** command and entering the root password.
3. The health status of the components could either be one of three statuses described below.
 - GREEN: No attention required, health status is NORMAL
 - YELLOW: Might require attention, health status is WARNING
 - RED: Requires immediate attention, health status is CRITICAL
4. Perform all available health checks by executing the following command.

```
/opt/vmware/sddc-support/sos --health-check --domain-name ALL
```

```
Version Check Status : GREEN
```

SL#	Component	BOM Version (lcmManifest)	Running version	VCF Inventory Version	State
1	ESXI: uat-m01esx01.uat.local	8.0.3-24022510	8.0.3-24022510	8.0.3-24022510	GREEN
2	ESXI: uat-m01esx02.uat.local	8.0.3-24022510	8.0.3-24022510	8.0.3-24022510	GREEN
3	ESXI: uat-m01esx03.uat.local	8.0.3-24022510	8.0.3-24022510	8.0.3-24022510	GREEN
4	ESXI: uat-m01esx04.uat.local	8.0.3-24022510	8.0.3-24022510	8.0.3-24022510	GREEN
5	ESXI: uat-w01esx01.uat.local	8.0.3-24022510	8.0.3-24022510	8.0.3-24022510	GREEN
6	ESXI: uat-w01esx02.uat.local	8.0.3-24022510	8.0.3-24022510	8.0.3-24022510	GREEN
7	ESXI: uat-w01esx03.uat.local	8.0.3-24022510	8.0.3-24022510	8.0.3-24022510	GREEN
8	ESXI: uat-w01esx04.uat.local	8.0.3-24022510	8.0.3-24022510	8.0.3-24022510	GREEN
9	NSX_MANAGER: uat-m01nsx01.uat.local	4.2.0.0-24105817	4.2.0.0-24105817	4.2.0.0-24105817	GREEN
10	NSX_MANAGER: uat-w01nsx01.uat.local	4.2.0.0-24105817	4.2.0.0-24105817	4.2.0.0-24105817	GREEN
11	SDDC: uat-m01sddcmgr.uat.local	5.2.0.0	5.2.0.0	5.2.0.0	GREEN
12	VCENTER: uat-m01vc01.uat.local	8.0.3.00100-24091160	8.0.3.00100-24091160	8.0.3.00100-24091160	GREEN
13	VCENTER: uat-w01vc01.uat.local	8.0.3.00100-24091160	8.0.3.00100-24091160	8.0.3.00100-24091160	GREEN

FIGURE 59. Health Check Status

5. Outputs the results of any health check as a JSON file to the specified directory, JSONDIR.

```
/opt/vmware/sddc-support/sos --json-output-dir JSONDIR --domain-name ALL
```

System configuration check using VCF Diagnostic Tool

A multi-product diagnostic tool named 'VCF Diagnostic Tool for vSphere' can be run directly on a vCenter Server appliance to know the accurate state of system configuration. This tool executes a series of checks on the system configuration and will report issues making it easier to detect inconsistencies.

Similarly, a diagnostic tool named 'VCF Diagnostic Tool' can be run on SDDC Manager that runs a series on checks on system configuration and reports any inconsistencies found.

To know more about these diagnostic tools, refer to <https://knowledge.broadcom.com/external/article/344917/using-the-vcf-diagnostic-tool-for-vspher.html>



RESOURCES AND ADDITIONAL LINKS

HPE Reference Architectures, hpe.com/info/ra

HPE Servers, hpe.com/servers

HPE Storage, hpe.com/storage

HPE Networking, hpe.com/networking

HPE GreenLake Advisory and Professional Services, <https://www.hpe.com/us/en/services/consulting.html>

The valid vLCM combination document mapping the HPE custom OEM image, HPE vendor add-on and Service Pack for ProLiant can be found at <https://vibsdepot.hpe.com/customimages/Valid-vLCM-Combos.pdf>

Upgrade the Management Domain to VMware Cloud Foundation 5.2

<https://docs.vmware.com/en/VMware-Cloud-Foundation/5.2/vcf-lifecycle/GUID-9A7BCB83-0E67-49B3-8808-FC7A9B360120.html#:~:text=Upgrade%20the%20Management%20Domain%20to%20VMware%20Cloud%20Foundation,VMware%20Cloud%20Foundation%20in%20a%20Federated%20Environment%20>

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