

VMware Cloud Foundation Lifecycle Management

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VMware Cloud Foundation 4.0

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

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

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About VMware Cloud Foundation Lifecycle Management

1

The *VMware Cloud Foundation Lifecycle Management* describes how to manage the lifecycle of a Cloud Foundation environment. The information includes prerequisites, step-by-step configuration instructions, and suggested best practices.

Intended Audience

The *VMware Cloud Foundation Lifecycle Management* is intended for cloud architects, infrastructure administrators, and cloud administrators who are familiar with and want to use VMware software to quickly deploy and manage an SDDC. The information in this document is written for experienced data center system administrators who are familiar with:

- Concepts of virtualization, software-defined data centers, virtual infrastructure (VI), and virtual desktop infrastructure (VDI)
- VMware virtualization technologies, such as VMware ESXi™, the hypervisor
- Software-defined networking using VMware NSX®
- Software-defined storage using VMware vSAN™
- IP networks

Additionally, you should be familiar with these VMware software products, software components, and their features:

- VMware vSphere®
- VMware vCenter Server® and VMware vCenter Server® Appliance™
- VMware vRealize® Log Insight™
- VMware Horizon®
- VMware App Volumes™

Related Publications

The *Planning and Preparation Workbook* provides detailed information about the software, tools, and external services that are required for Cloud Foundation.

The *VMware Cloud Foundation Deployment Guide* contains detailed information about a Cloud Foundation system, its components, and the network topology of a deployed system.

The *VMware Cloud Foundation Operations and Administration Guide* provides information about managing a VMware Cloud Foundation™ system, including managing the system's virtual infrastructure, managing users, configuring and deploying service offerings, and upgrading and monitoring the system.

About Cloud Foundation Bundles

2

Lifecycle Management (LCM) enables you to perform the automated updates on the Cloud Foundation services (SDDC Manager and internal services) and the VMware software (vCenter Server, ESXi, NSX-T, and vRealize Suite Lifecycle Manager) in your environment. The update bundles can be downloaded and applied manually or scheduled within your maintenance window, allowing for flexibility in your application.

This chapter includes the following topics:

- [Bundle Types](#)
- [Download Bundles](#)
- [View Bundle Download History](#)

Bundle Types

Cloud Foundation includes two types of bundles.

Update or Upgrade Bundles

An update or upgrade bundle contains bits to update the appropriate Cloud Foundation software components in your management domain or VI workload domain. In most cases, an upgrade bundle must be applied to the management domain before it can be applied to workload domains.

Some upgrade bundles are cumulative bundles. With a cumulative upgrade bundle, you can directly upgrade the appropriate software in your workload domain to the version contained in the cumulative bundle rather than applying sequential upgrades to reach the target version. Cumulative bundles are available only for vCenter Server and ESXi.

Note that you can apply a cumulative bundle to a workload domain only if the target release in the bundle is lower than or at the same version as the management domain. If the cumulative bundle is available for both the management domain and VI workload domains, you must apply it to the management domain before applying it to VI workload domains.

Install Bundles

If you have updated the management domain in your environment, you can download an install bundle with updated software bits for VI workload domains and vRealize Suite Lifecycle Manager.

- A VI workload domain install bundle is used to deploy later versions of the software components rather than the versions in your original Cloud Foundation installation.
- An install bundle is required for deploying vRealize Suite Lifecycle Manager.

Download Bundles

If LCM is configured to work with your My VMware account, LCM automatically polls the depot to access the bundles. You receive a notification when a bundle is available and can then download the bundle.

If you do not have internet connectivity, you can either use a proxy server to access the depot, or download the bundles manually.

Online Bundle Download

You can either download bundles through the SDDC Manager dashboard or through a proxy server.

- [Download Bundles from SDDC Manager](#)

When upgrade bundles are available for your environment, a message is displayed on the SDDC Manager Dashboard.

- [Download Bundles With a Proxy Server](#)

If you do not have internet access, you can use a proxy server to download the LCM bundles. LCM only supports proxy servers that do not require authentication.

Download Bundles from SDDC Manager

When upgrade bundles are available for your environment, a message is displayed on the SDDC Manager Dashboard.

To download an install bundle, navigate to **Repository > Bundle Management** on the SDDC Manager Dashboard to view the available bundles. Then follow the instructions in step 4 below.

Prerequisites

Automatic polling of the manifest for bundles by SDDC Manager must be enabled (Default setting). If you have previously edited the application-prod.properties file on SDDC Manager VM to download upgrade bundles in an offline mode, you must edit it again before downloading bundles from SDDC Manager. Follow the steps below:

- 1 Using SSH, log in to the SDDC Manager VM with the following credentials:

Username: vcf

Password: use the password specified in the deployment parameter sheet

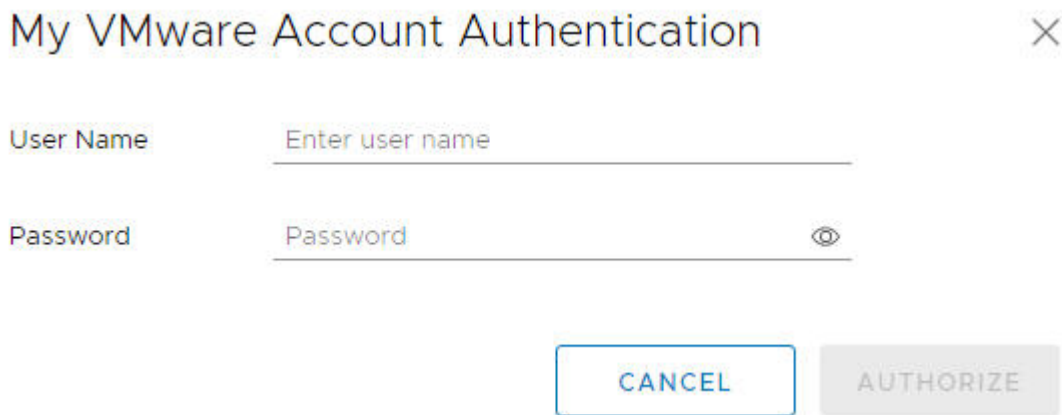
- 2 Enter su to switch to the root user.
- 3 Open the `/opt/vmware/vcf/lcm/lcm-app/conf/application-prod.properties` file.
- 4 Set `lcm.core.enableManifestPolling=true`.
- 5 Restart LCM service with the command below:

```
systemctl restart lcm
```

Procedure

- 1 Log in to your My VMware Account.
 - a On the SDDC Manager Dashboard, click **Administration > Repository Settings**.
 - b Click **Authenticate**.

The My VMware Account Authentication page appears.



- c Type your user name and password.
 - d Click **Authorize**.
- 2 View available bundles by navigating to **Repository > Bundle Management** on the SDDC Manager Dashboard.

The Bundles page displays the bundles available for download. The Bundle Details section displays the bundle version and release date.

If the bundle can be applied right away, the Bundle Details column displays the workload domains to which the bundle needs to be applied to, and the Availability column says Available. If another bundle needs to be applied before a particular bundle, the Availability field displays Future.
- 3 To view more information about the bundle, click **View Details**.

The Bundle Details section displays the bundle version, release date, and additional details about the bundle.
- 4 Click **Exit Details**.

5 Specify when to download the bundle.

- Click **Download Now** to start the download immediately.
- Click **Schedule Download** to set the date and time for the bundle download.

Results

The Download Status section displays the date and time at which the bundle download has been scheduled. When the download begins, the status bar displays the download progress.

Download Bundles With a Proxy Server

If you do not have internet access, you can use a proxy server to download the LCM bundles. LCM only supports proxy servers that do not require authentication.

Procedure

- 1 Using SSH, log in to the SDDC Manager VM with the user name `vcf` and password you specified in the deployment parameter sheet.
- 2 Type `su` to switch to the root account.
- 3 Open the `/opt/vmware/vcf/lcm/lcm-app/conf/application-prod.properties` file.
- 4 Update the following lines to the end of the file:

```
lcm.depot.adapter.proxyEnabled=true
lcm.depot.adapter.proxyHost=proxy IP address
lcm.depot.adapter.proxyPort=proxy port
```

- 5 Save and close the file.
- 6 Restart the LCM server by typing the following command in the console window:


```
systemctl restart lcm
```
- 7 Wait for 5 minutes and then download the bundles.

Offline Bundle Download for VMware Cloud Foundation

LCM polls the VMware depot to access update bundles. If you do not have internet connectivity in your Cloud Foundation system, you can use the Bundle Transfer utility to manually download the bundles from the depot on your local computer and then upload them to SDDC Manager.

Prerequisites

Ensure you have access to a Windows or Linux computer with internet connectivity for downloading the bundles. The computer must have Java 8 or later.

Procedure

- 1 Using SSH, log in to the SDDC Manager VM with the user name `vcf` and password you specified in the deployment parameter sheet.

2 Change directories:

```
cd /opt/vmware/vcf/lcm/lcm-tools/bin
```

3 Download the required bundles using one of the commands below. For help on available options, type the following:

```
/opt/vmware/vcf/lcm/lcm-tools/bin/lcm-bundle-transfer-util --help
```

- Download all bundles for a release.

```
./lcm-bundle-transfer-util -download -outputDirectory Output-Dir -depotUser Username -p releaseNumber
```

- Download a single bundle.

```
./lcm-bundle-transfer-util -download -outputDirectory Output-Dir -depotUser Username -bundle bundle-name
```

- Download bundles by type (install or patch).

```
./lcm-bundle-transfer-util -download -outputDirectory Output-Dir -depotUser -imageType INSTALL|PATCH
```

- Generate a marker file with all bundles that apply based on the software version in your environment.

```
./lcm-bundle-transfer-util --generateMarker
```

The marker file (named `markerFile`) is a JSON file that contains information on the current software versions running on SDDC Manager. It also contains the bundles IDs for bundles that were downloaded before this file was generated. The `markerFile.md5` contains the checksum for the `markerFile`. The output contains the directory where the marker file is generated.

4 Copy the `/opt/vmware/vcf/lcm/lcm-tools` directory, and the downloaded bundles (or marker file) from step 3 to a computer with internet access.

The `/opt/vmware/vcf/lcm/lcm-tools` directory includes the bundle transfer utility required for the next step.

5 On the computer with internet access, run the following command.

```
./lcm-bundle-transfer-util -download
    -outputDirectory ${absolute-path-output-dir}
    -depotUser ${depotUser}
    -markerFile ${absolute-path-markerFile}
    -markerMd5File ${absolute-path-markerFile.md5} -p ${vcf product version}
```

where

<i>absolute-path-output-dir</i>	Path to the directory where the bundle files are to be downloaded. This directory folder must have 777 permissions. If you do not specify the download directory, bundles are downloaded to the default directory with 777 permissions.
<i>depotUser</i>	User name for myVMware depot. You are prompted to enter the depot user password. If there are any special characters in the password, specify the password within single quotes.
<i>markerFile</i>	Absolute path to the marker file, as generated in the above step. This is required only if you generated a marker file in step 3. If you do not specify the path to the marker file, all update bundles on the depot are downloaded.
<i>markerMd5File</i>	Absolute path to the marker MD5 checksum file, as generated in the above step.

The utility generates a delta file (`deltaFileDownloaded`) in the download directory based on the software versions in the marker file and the update bundles available on the depot. The applicable bundles identified in the delta file are downloaded. Download progress for each bundle is displayed. Initially, only the SDDC Manager bundle will be available.

- 6 Copy the update bundle directory from the external computer to the SDDC Manager VM.

For example:

```
scp -pr /root/vcf372tovcf38Bundle vcf@SDDC_MANAGER_IP:/nfs/vmware/vcf/nfs-mount/
```

The `scp` command in the example above creates a directory named `vcf372tovcf38Bundle` in the `/nfs/vmware/vcf/nfs-mount/` directory.

- 7 In the SDDC Manager VM, change the ownership and permissions of the uploaded bundle.

```
chmod -R 0777 /nfs/vmware/vcf/nfs-mount/vcf372tovcf38Bundle
```

- 8 In the SDDC Manager VM, upload the bundle files to the internal LCM repository. You must upload the upgrade and install bundles.

```
cd /opt/vmware/vcf/lcm/lcm-tools/bin
./lcm-bundle-transfer-util -upload -bundleDirectory ${absolute-path-output-dir}
```

where *absolute-path-output-dir* is the directory where the bundle files have been uploaded, or `/nfs/vmware/vcf/nfs-mount/vcf372tovcf38Bundle` as shown in the previous step.

The utility uploads the bundles specified in the `deltaFileDownloaded` file. The console displays upload status for each bundle. Wait for all bundles to be uploaded before proceeding with the upgrade.

Download Specific Bundles

The Bundle Transfer Utility is a command line tool used to identify bundles applicable to your environment and download the bundles from the VMware depot to a computer that has internet access.

This procedure provides information about downloading specific bundles to a computer with internet access. When the bundle downloads complete, copy the output directory to a computer with access to the SDDC Manager VM, and then copy the directory to the SDDC Manager VM. After you copy the directory to the SDDC Manager VM, upload the bundle files to the internal LCM repository. See [Offline Bundle Download for VMware Cloud Foundation](#) for more information.

Note The Bundle Transfer Utility and Skip Level Upgrade Tool is the only supported method for downloading bundles. Do not use third-party tools or other methods to download bundles.

Download Bundles for a Product Version

You can download bundles for a specific product version.

- 1 Display a list of the bundles for a specific product version.

```
./lcm-bundle-transfer-util --depotUser depotUser --listBundles --productVersion
product_version
(OR)
./lcm-bundle-transfer-util --du depotUser -l -p product_version
```

For example:

```
./lcm-bundle-transfer-util --du fruyven@vmware.com -l -p 3.10.2.2
```

- 2 Download bundles based on a specific product version.

```
./lcm-bundle-transfer-util --download --outputDirectory absolute-path-output-dir --
depotUser depotUser --productVersion product_version
(OR)
./lcm-bundle-transfer-util -d -op absolute-path-output-dir --du depotUser -p
product_version
```

For example, to download all the bundles for the 3.10.2.2 version:

```
./lcm-bundle-transfer-util --download --depotUser fruyven@vmware.com --outputDirectory /
Users/fruyven/downloadedBundles -p 3.10.2.2
```

Download a Single Bundle

Download a single bundle.

```
./lcm-bundle-transfer-util --download --outputDirectory absolute-path-output-dir --depotUser
depotUser --bundle bundle_name
(OR)
./lcm-bundle-transfer-util --download --outputDirectory absolute-path-output-dir --depotUser
depotUser -b bundle_name
```

For example:

```
./lcm-bundle-transfer-util --download --outputDirectory /Users/fruyven/downloadedBundles --
depotUser fruyven@vmware.com --bundle bundle-50721
```

View Bundle Download History

The Bundle Download History page displays all bundles that have been downloaded.

Procedure

- ◆ In the SDDC Manager Dashboard, click **Repository > Bundle Management > Download History**.

All downloaded bundles are displayed. Click **View Details** to see bundle metadata details.

Upgrade Cloud Foundation

3

Cloud Foundation upgrades are sequential. So in order to upgrade to a release, your environment must be on the version before that release.

The upgrade sequence for 4.x releases is as follows:

4.0 → 4.0.0.1 → 4.0.1 → 4.0.1.1.

Upgrades are applied on a workload domain basis. The management domain contains the core infrastructure, so you must upgrade the management domain before upgrading the other workload domains. You must upgrade all required components to keep your system in an optimum state.

Updating and patching non-vSAN storage is a manual task and falls outside of SDDC Manager lifecycle management. To ensure supportability, non-vSAN storage and HBAs must be validated against the vSphere HCL.

This chapter includes the following topics:

- [Update Prerequisites](#)
- [Perform Update Precheck](#)
- [Upgrade to Cloud Foundation 4.0.1.1](#)
- [Upgrade the Management Domain to 4.0.1](#)
- [Upgrade Workload Domains to 4.0.1](#)
- [Upgrade to Cloud Foundation 4.0.0.1](#)

Update Prerequisites

Ensure that the following prerequisites are met before starting an update.

- 1 Take a backup of the SDDC Manager VM. This is required since the SDDC Manager VM will be rebooted during the update.
- 2 Take a snapshot of relevant VMs in your management domain.
- 3 Do not run any domain operations while an update is in progress. Domain operations are creating a new VI domain, adding hosts to a cluster or adding a cluster to a workload domain, and removing clusters or hosts from a workload domain.

- 4 You must have downloaded the relevant bundles. See [Download Bundles](#).
- 5 Ensure that there are no failed workflows in your system and none of the Cloud Foundation resources are in activating or error state. If any of these conditions are true, contact VMware Support before starting the update.
- 6 Confirm that the passwords for all Cloud Foundation components are valid.

Perform Update Precheck

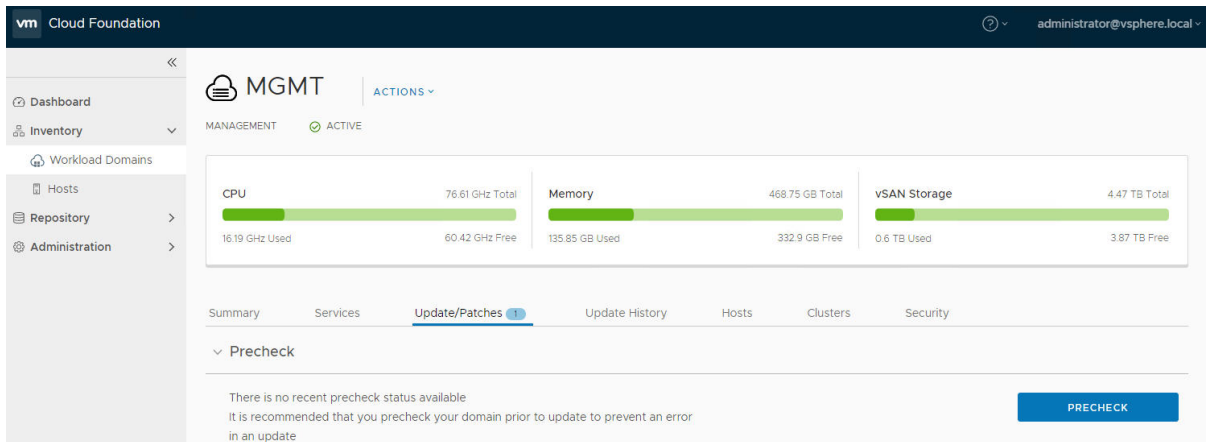
You must perform a precheck before applying a patch bundle to ensure that your environment is ready for the update. For an ESXi bundle, the system performs a bundle level precheck in addition to the environment precheck.

For VUM-based workload domains, the ESXi bundle precheck validates the following.

- Custom ISO is compatible with your environment.
- Custom ISO size is smaller than the boot partition size.
- Third party VIBs are compatible with the environment.

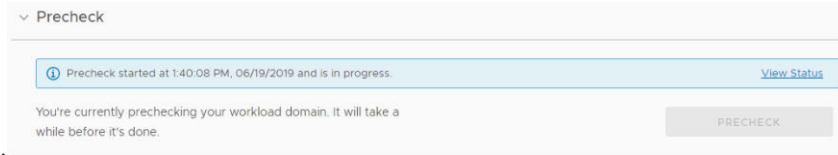
Procedure

- 1 Navigate to the Updates/Patches tab of the management domain or workload domain where you need to apply the bundle. The image below is a sample screenshot and may not reflect the correct product versions.



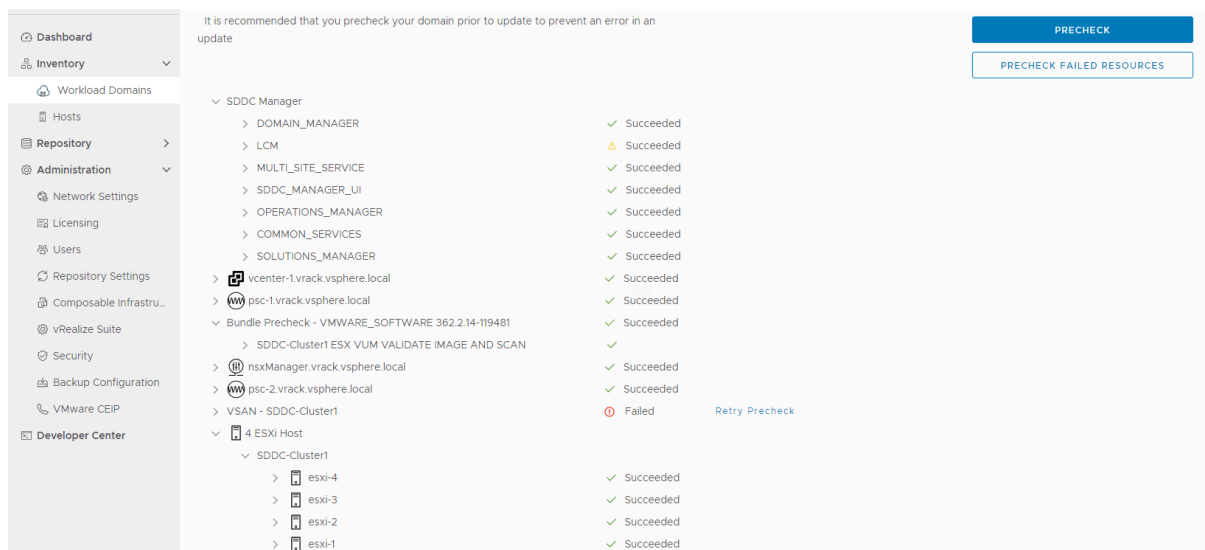
- Click **Precheck** to validate that the environment is ready to be upgraded. If you run the precheck before upgrading ESXi and there are multiple ESXi bundles available (for example, during a cumulative upgrade), a dialog box appears asking you to select the bundle that you want to validate during the precheck.

Once 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. The image below is a sample screenshot and may not reflect the correct versions.



- 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.

If ESXi hosts display a driver incompatibility issue in a VUM-based workload domain update, perform the following steps:

- Identify the controller with the HCL issue.
- For the given controller, identify the supported driver and firmware versions on the source and target ESXi versions.
- Upgrade the firmware, if required.
- Upgrade the driver manually on the ESXi host and retry the task at which the upgrade failed.

For information on updating passwords, see "Updating SDDC Manager Passwords" in the *VMware Cloud Foundation Operations and Administration Guide*.

Results

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.

Upgrade to Cloud Foundation 4.0.1.1

You can only upgrade to Cloud Foundation 4.0.1.1 from Cloud Foundation 4.0.1.

The process for upgrading to Cloud Foundation 4.0.1.1 involves updating Cloud Foundation and vCenter Server in the management domain. After you upgrade the management domain, update vCenter Server in all of your VI workload domains.

Prerequisites

Download the 4.0.1.1 bundles. See [Download Bundles](#).

Procedure

- 1 Navigate to the Updates/Patches tab of the management domain.
- 2 Run the upgrade precheck. See [Perform Update Precheck](#).
- 3 In the Available Updates section, click **Update Now** or **Schedule Update** and select the date and time for the Cloud Foundation bundle to be applied.

The 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.

- 4 Click **Finish**.
- 5 Navigate to the Updates/Patches tab of the management domain.
- 6 Run the upgrade precheck. See [Perform Update Precheck](#).
- 7 In the Available Updates section, click **Update Now** or **Schedule Update** and select the date and time for the vCenter Server bundle to be applied.

After the upgrade is completed, a green bar with a check mark is displayed.

- 8 Repeat steps 5-7 for each of your VI workload domains.

Upgrade the Management Domain to 4.0.1

You must upgrade the management domain before upgrading workload domains in your environment.

Components in the management domain must be upgraded in the following order:

- 1 SDDC Manager and Cloud Foundation services. See [Upgrade Cloud Foundation Software](#) .
- 2 NSX-T Data Center. See [Chapter 4 Upgrade NSX-T Data Center](#) .
- 3 vCenter Server and Platform Services Controllers. See [Chapter 5 Upgrade vCenter Server](#) .
- 4 ESXi. See [Chapter 6 Upgrade ESXi](#) .

Upgrade Cloud Foundation Software

To upgrade to Cloud Foundation 4.0.1 from Cloud Foundation 4.0.0.1, you apply two bundles to the management domain.

The bundles upgrade the following components:

- The VMware Cloud Foundation Update bundle upgrades SDDC Manager, LCM, and Cloud Foundation services.
- The Configuration Drift bundle applies configuration drift on the software components in the management domain.

Apply Cloud Foundation Update Bundle

The Cloud Foundation Update bundle upgrades LCM and Cloud Foundation services.

Prerequisites

Download the bundle. See [Download Bundles](#).

Procedure

- 1 Navigate to the Updates/Patches tab of the management domain.
- 2 Run the upgrade precheck. See [Perform Update Precheck](#).
- 3 In the Available Updates section, click **Update Now** or **Schedule Update** and select the date and time for the bundle to be applied.

Schedule Update ×

The bundle will be scheduled based on your selected date and time.

Date

Time : :

The 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.

- 4 Click **Finish**.

Apply Configuration Drift Bundle

The configuration drift bundle applies configuration changes required for 2nd party software component in the Cloud Foundation Bill of Materials for the target release. Configuration changes are applied to the management domain and may also affect workload domains in your environment. However, there is no downtime on workload domains and they need not be in a maintenance window.

Prerequisites

You must have downloaded the configuration drift bundle. See [Download Bundles](#).

Procedure

- 1 Navigate to the Updates/Patches tab of the management domain.
- 2 Run the upgrade precheck. See [Perform Update Precheck](#).
- 3 In the Available Updates section, click **Update Now** or **Schedule Update** for the bundle and click the date and time for the bundle to be applied.

After the upgrade is completed, a green bar with a check mark is displayed.

Upgrade Workload Domains to 4.0.1

The management domain in your environment must be upgraded before you upgrade a workload domain.

Within a workload domain, components must be upgraded in the following order.

- 1 NSX-T. See [Chapter 4 Upgrade NSX-T Data Center](#).
- 2 vCenter Server and Platform Services Controllers. See [Chapter 5 Upgrade vCenter Server](#).
- 3 ESXi. See [Chapter 6 Upgrade ESXi](#).

Post Upgrade Steps for NFS-Based Workload Domains

After upgrading workload domains, you must add a static route for hosts to access NFS storage over the NFS gateway. This process must be completed before expanding the workload domain.

- 1 Identify the IP address NFS server for the workload domain.
- 2 Identify the network pool associated with the hosts in the cluster and the NFS gateway for the network pool.
 - a Log in to SDDC Manager.
 - b Click **Inventory > Workload Domains** and then click the workload domain you are performing the post upgrade steps on.
 - c Click the **Clusters** tab and then click an NFS-based cluster.
 - d Click the **Hosts** tab and note down the network pool for the hosts.

- e Click the Info icon next to the network pool name and note down the NFS gateway.
- 3 Ensure that the NFS server is reachable from the NFS gateway. If a gateway does not exist, create it.
- 4 Identify the vmknics on each host in the cluster that is configured for NFS traffic.
- 5 Configure a static route on each host to reach the NFS server from the NFS gateway.


```
esxcli network ip route ipv4 add -g NFS-gateway-IP -n NFS-gateway
```
- 6 Verify that the new route is added to the host using the NFS vmknics


```
esxcli network ip route ipv4 list
```
- 7 Ensure that the hosts in the NFS cluster (nfs-cluster-1) can reach the NFS gateway (10.0.24.1) through the NFS vmkernel (vmk2) using the `vmkping` command.


```
vmkping -4 -I vmk2 -s 1470 -d -W 5 10.0.22.250
```
- 8 Repeat steps 2 through 7 for each cluster using NFS storage.

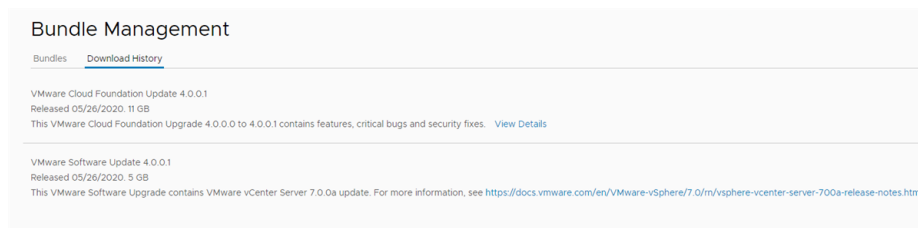
Upgrade to Cloud Foundation 4.0.0.1

You can only upgrade to Cloud Foundation 4.0.1 from Cloud Foundation 4.0.0.1. If you have not already done so, use the following procedure to upgrade to 4.0.0.1.

The process for upgrading to Cloud Foundation 4.0.0.1 involves updating Cloud Foundation and vCenter Server in the management domain. After you upgrade the management domain, update vCenter Server in all of your VI workload domains.

Prerequisites

Download the bundles. See [Download Bundles](#).



Procedure

- 1 Navigate to the Updates/Patches tab of the management domain.
- 2 Run the upgrade precheck. See [Perform Update Precheck](#).
- 3 In the Available Updates section, click **Update Now** or **Schedule Update** and select the date and time for the Cloud Foundation bundle to be applied.

The 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.

VMware Cloud Foundation Update Status

VMware Cloud Foundation Update 4.0.0.1

Released 05/26/2020 11 GB
This VMware Cloud Foundation Upgrade 4.0.0.0 to 4.0.0.1 contains features, critical bugs and security fixes.

Update applied at 2:10 PM, 06/17/2020 - Elapsed Time : 34 minutes 16 seconds

[VIEW UPDATE ACTIVITY](#)

Component	Status	Version
SDDC MANAGER	Updated	4.0.0.0-16008466 → 4.0.0.1-16221345
COMMON SERVICES	Updated	
OPERATIONS MANAGER	Updated	
DOMAIN MANAGER	Updated	
SOLUTIONS MANAGER	Updated	
SDDC MANAGER UI	Updated	
LCM	Updated	
MULTI SITE SERVICE	Updated	
THIRD PARTY	Updated	

- 4 Click **Finish**.
- 5 Navigate to the Updates/Patches tab of the management domain.
- 6 Run the upgrade precheck. See [Perform Update Precheck](#).
- 7 In the Available Updates section, click **Update Now** or **Schedule Update** and select the date and time for the vCenter Server bundle to be applied.

Summary Services **Update/Patches** Update History Hosts Clusters Security

To view available updates, authorize [My VMware Account](#).

Precheck

There is no recent precheck status available.
It is recommended that you precheck your domain prior to update.

Available Updates

VMware Software Update 4.0.0.1
Released 05/26/2020 5 GB
This VMware Software Upgrade contains VMware vCenter Server 7.0.0a update. For more information, see <https://docs.vmware.com/en/VMware-vSphere/7.0/m/vsphere-vcenter-server-700a-release-notes.html>
Cumulative Bundle

[View Details](#)

Current Versions

SDDC Manager
4.0.0.1-16221345

vcenter-1.vrack.vsphere.local
7.0.0.10100-15952498

After the upgrade is completed, a green bar with a check mark is displayed.

- 8 Repeat steps 5-7 for each of your VI workload domains.

Upgrade NSX-T Data Center

4

Upgrade NSX-T Data Center in the management domain before you upgrade workload domains.

Upgrading NSX-T Data Center involves the following components:

- Upgrade Coordinator
- Edge clusters (if deployed)
- Host clusters
- NSX Manager cluster

NSX-T VI workload domains can share the same NSX Manager cluster and NSX Edge clusters. When you upgrade these components for one NSX-T VI workload domain, they are upgraded for all NSX-T VI workload domains that share the same NSX Manager or NSX Edge cluster. You cannot perform any operations on the NSX-T workload domains while NSX-T is being upgraded.

If you have multiple host clusters in an NSX-T workload domain, you can select which clusters to upgrade. The ability to select clusters allows for multiple upgrade windows and does not require all clusters to be available at a given time.

Note The NSX Manager cluster is not upgraded until all host clusters in the workload domain are upgraded. New features introduced in the upgrade are not configurable until the NSX Manager cluster is upgraded.

Prerequisites

- Download the NSX-T Data Center upgrade bundle. See [Download Bundles](#).

Procedure

- 1 Navigate to the Updates/Patches tab of the management domain or a workload domain.

You must upgrade the management domain before upgrading workload domains.

When you upgrade NSX-T components for a selected workload domain, those components are upgraded for all NSX-T workload domains that share the NSX Manager cluster.

- 2 Run the upgrade precheck. See [Perform Update Precheck](#).

The NSX-T precheck is run on all NSX-T workload domains in your environment that share the NSX Manager cluster.

- 3 In the Available Updates section, click **Update Now** or **Schedule Update** for the NSX-T bundle and select the date and time for the bundle to be applied.

The NSX-T Upgrade Confirmation dialog box appears.

- 4 Click **Confirm**.

- 5 Select the NSX-T host clusters.

To select all host clusters, enable the **Upgrade all host clusters** setting.

- 6 Review the settings and click **Finish**.

The NSX-T upgrade begins and the upgrade components are displayed. The upgrade view displayed here pertains to the workload domain where you applied the bundle. Click the link to the associated workload domains to see the components pertaining to those workload domains.

- 7 Monitor the upgrade progress. See [Chapter 9 Monitor Updates](#).

If a component upgrade fails, the failure is displayed across all associated workload domains. Resolve the issue and retry the failed task.

Results

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

What to do next

- If you are upgrading the management domain, see [Upgrade the Management Domain to 4.0.1](#) for information on the next component to be upgraded.
- If you are upgrading a workload domain, see [Upgrade Workload Domains to 4.0.1](#) for information on the next component to be upgraded.

Upgrade vCenter Server

5

The vCenter bundle upgrades vCenter Server. Upgrade the management domain before upgrading any workload domains.

Prerequisites

Download the upgrade bundle. See [Download Bundles](#).

Procedure

- 1 Navigate to the Updates/Patches tab of the domain you are upgrading.
- 2 Run the upgrade precheck. See [Perform Update Precheck](#).
- 3 In the Available Updates section, click **Update Now** or **Schedule Update** for the vCenter bundle and click the date and time for the bundle to be applied.

After the upgrade is completed, a green bar with a check mark is displayed.

What to do next

- If you are upgrading the management domain, see [Upgrade the Management Domain to 4.0.1](#) for information on the next component to be upgraded.
- If you are upgrading a workload domain, see [Upgrade Workload Domains to 4.0.1](#) for information on the next component to be upgraded.

Upgrade ESXi

6

By default, the upgrade process upgrades the ESXi hosts in all clusters in a domain. If you have multiple clusters in the management domain or in a VI workload domain, you can select which clusters to upgrade.

If you want to skip any hosts while applying an ESXi update to the management domain or a VI workload domain, you must add these hosts to the `application-prod.properties` file before you begin the update. See [Chapter 8 Skip Hosts During ESXi Update](#).

To perform ESXi upgrades with custom images and async drivers, see [Chapter 7 Upgrade ESXi with Custom ISO or Async Drivers](#).

If you are using external (non-vSAN) storage, the following procedure updates the ESXi hosts attached to the external storage. However, updating and patching the storage software and drivers is a manual task and falls outside of SDDC Manager lifecycle management. To ensure supportability after an ESXi upgrade, consult the vSphere HCL and your storage vendor.

Prerequisites

- Download the ESXi bundle. See [Download Bundles](#).
- 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.
- For clusters in a vSphere Lifecycle Manager (vLCM)-enabled workload domain, you must have a cluster image set up that includes the ESXi version that you want to upgrade to. The ESXi version must match the version in the bundle you downloaded. See [Cluster Image Management](#).
- To add or upgrade the firmware on clusters in a vLCM-enabled workload domain, you must have the vendor Hardware Support Manager installed. See [Adding Firmware and Components to a Cluster Image](#).

Procedure

- 1 Navigate to the Updates/Patches tab of the domain.
- 2 Run the upgrade precheck. See [Perform Update Precheck](#).
- 3 In the Available Updates section, click **Update Now** or **Schedule Update** for the ESXi bundle and click the date and time for the bundle to be applied.

4 Select the clusters to upgrade and click **Next**.

The default setting is to upgrade all clusters. To upgrade specific clusters, click **Enable cluster-level selection** and select the clusters to upgrade.

5 If you are upgrading a vLCM-enabled VI workload domain, the **Assign Images** tab appears.

- a In Step 1, select one or more clusters. If you select multiple clusters, they must include hosts from the same vendor.

Schedule Update

- 1 Select Clusters
- 2 Assign Images**
- 3 Schedule Update
- 4 Review

Assign Images

Select clusters to apply images and firmware/driver addons. All Clusters must be assigned a new image before proceeding.

⚠ You must assign a cluster image to all selected clusters before proceeding.

Step 1 Select a cluster or multiple clusters of the same vendor to assign a cluster image.

Selected Clusters	Target Image	Hardware Vendor	Current HSP	Target HSP
<input checked="" type="checkbox"/> SDDC-Cluster1		com.dell.plugin.Open Manager_HWSupport Manager	System Update 2019-06 - 2.3.2-0	

☒ 1 Cluster per page 10 1 - 10 of 0 cluster

Step 2 Select a cluster image to assign to the selected clusters. If there are no applicable cluster images, go to Image Management to import or create a new cluster image.

Cluster Image ⓘ Select Cluster Image

APPLY IMAGE

- b In Step 2, select the image to be assigned to the selected clusters. The ESXi version, vendor add-ons, components, and Firmware and Drivers Addons for the selected image are displayed.

Schedule Update

- 1 Select Clusters
- 2 Assign Images**
- 3 Schedule Update
- 4 Review

Assign Images

Select clusters to apply images and firmware/driver addons. All Clusters must be assigned a new image before proceeding.

⚠ You must assign a cluster image to all selected clusters before proceeding.

Step 1 Select a cluster or multiple clusters of the same vendor to assign a cluster image.

Selected Clusters	Target Image	Hardware Vendor	Current HSP	Target HSP
<input checked="" type="checkbox"/> SDDC-Cluster1		com.dell.plugin.Open Manager_HWSupport Manager	System Update 2019-06 - 2.3.2-0	

☒ 1 Cluster per page 10 1 - 10 of 0 cluster

Step 2 Select a cluster image to assign to the selected clusters. If there are no applicable cluster images, go to Image Management to import or create a new cluster image.

Cluster Image ⓘ Personality1

Firmware and Drivers Addon (Optional) ⓘ Select Firmware and Drivers Addon

ESXi Version 7.0.0-15384316	Vendor Addon ⓘ esx-no-tools-1	Components ⓘ 2 Components Show Details	Firmware/Driver Addon ⓘ No Firmware Addon
--------------------------------	----------------------------------	--	--

- c Select the Firmware and Drivers Addon for the selected clusters (optional).

Note that the cluster image is not updated with the firmware.

d Click **Apply Image** and then click **Next**.

6 Click **Finish**.

7 Monitor the upgrade progress. See [Chapter 9 Monitor Updates](#).

What to do next

- If you are upgrading the management domain, see [Upgrade the Management Domain to 4.0.1](#) for information on the next component to be upgraded.
- If you are upgrading a workload domain, see [Upgrade Workload Domains to 4.0.1](#) for information on the next component to be upgraded.

Upgrade ESXi with Custom ISO or Async Drivers

7

For clusters in VUM-based workload domains, you can perform ESXi upgrades with custom images and async drivers.

This chapter includes the following topics:

- [Upgrade ESXi with Custom ISO](#)
- [Upgrade ESXi with Cloud Foundation Stock ISO and Async Drivers](#)

Upgrade ESXi with Custom ISO

You can upgrade ESXi with a custom ISO from your vendor. This feature is available for Cloud Foundation version 3.5.1 and later.

Prerequisites

Download the appropriate vendor-specific ISO on a computer with internet access.

Procedure

- 1 Download the ESXi upgrade bundle. See [Download Bundles from SDDC Manager](#).
- 2 Using SSH, log in to the SDDC Manager VM.
- 3 Create a directory for the vendor ISO under the `/nfs/vmware/vcf/nfs-mount` directory. For example, `/nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-binaries`.
- 4 Copy the vendor-specific ISO to the directory you created on the SDDC Manager VM. For example, you can copy the ISO to the `/nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-binaries` directory.
- 5 Change permissions on the directory where you copied the ISO. For example,

```
chmod -R 775 /nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-binaries/
```
- 6 Change owner to vcf.

```
chown -R vcf_lcm:vcf /nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-binaries/
```

7 Create an ESX custom image JSON using the following template.

```
{
  "esxCustomImageSpecList": [{
    "bundleId": "ID",
    "targetEsxVersion": "version",
    "useVcfBundle": false,
    "customIsoAbsolutePath": "Path_to_ISO"
  }]
}
```

where

Parameter	Description and Example Value
bundleId	<p>ID of the ESXi upgrade bundle you downloaded. You can retrieve the bundle ID by navigating to the Repository > Bundles page and clicking View Details to view the bundle ID.</p> <p>For example, 8c0de63d-b522-4db8-be6c-f1e0ab7ef554.</p> <p>Note If an incorrect bundle ID is provided, the upgrade will proceed with the Cloud Foundation stock ISO and replace the custom VIBs in your environment with the stock VIBs.</p>
targetEsxVersion	ESXi version in the custom image to be applied.
useVcfBundle	<p>Specifies whether the Cloud Foundation ESXi bundle is to be used for the upgrade.</p> <p>Note If you want to upgrade with a custom ISO image, ensure that this is set to false.</p>
customIsoAbsolutePath	<p>Path to the custom ISO file on the SDDC Manager VM. For example, /nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-binaries/ VMware-ESXi-6.7.0-Update1-10302608-HPE-Gen9plus-670.U1.10.3.5.12-Oct2018.iso</p>

Here is an example of a completed JSON template.

```
{
  "esxCustomImageSpecList": [{
    "bundleId": "8c0de63d-b522-4db8-be6c-f1e0ab7ef554",
    "targetEsxVersion": "6.7.0-10302608",
    "useVcfBundle": false,
    "customIsoAbsolutePath":
"/nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-binaries/VMware-ESXi-6.7.0-Update1-10302608-HPE-Gen9plus-670.U1.10.3.5.12-Oct2018.iso"
  }]
}
```

- 8 Save the JSON file as `esx-custom-image-upgrade-spec.json` in the `/nfs/vmware/vcf/nfs-mount`.

Note If the JSON file is not saved in the correct directory, the stock Cloud Foundation ISO is used for the upgrade and the custom VIBs are overwritten.

- 9 Set the correct permissions on the `/nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json` file:

```
chmod -R 775 /nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json
chown -R vcf_lcm:vcf /nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json
```

- 10 Open the `/opt/vmware/vcf/lcm/lcm-app/conf/application-prod.properties` file.
- 11 In the `lcm.esx.upgrade.custom.image.spec=` parameter, add the path to the JSON file.
For example, `lcm.esx.upgrade.custom.image.spec=/nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json`
- 12 On the SDDC Manager Dashboard, click **Inventory > Workload Domains**.
- 13 Click the management domain and then click **Updates/Patches**.
- 14 Schedule the ESXi upgrade bundle.
- 15 Monitor the upgrade progress. See [Chapter 9 Monitor Updates](#).
- 16 After the upgrade is complete, confirm the ESXi version by clicking **Current Versions**. The ESXi hosts table displays the current ESXi version.

Upgrade ESXi with Cloud Foundation Stock ISO and Async Drivers

You can apply the stock ESXi upgrade bundle with specified async drivers. This feature is available for Cloud Foundation version 3.5.1 and later.

Prerequisites

Download the appropriate async drivers for your hardware on a computer with internet access.

Procedure

- 1 Download the Cloud Foundation ESXi upgrade bundle. See [Download Bundles from SDDC Manager](#).
- 2 Using SSH, log in to the SDDC Manager VM.
- 3 Create a directory for the vendor provided async drivers under the `/nfs/vmware/vcf/nfs-mount` directory. For example, `/nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-drivers/drivers`.

- 4 Copy the async drivers to the directory you created on the SDDC Manager VM. For example, you can copy the drivers to the `/nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-drivers/drivers` directory.
- 5 Change permissions on the directory where you copied the drivers. For example,


```
chmod -R 775 /nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-drivers/drivers
```
- 6 Change owner to vcf.


```
chown -R vcf_lcm:vcf /nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-drivers/drivers
```
- 7 Create an ESX custom image JSON using the following template.

```
{
  "esxCustomImageSpecList": [{
    "bundleId": "ID",
    "useVcfBundle": true,
    "esxPatchesAbsolutePaths": [
      "Path_to_Drivers"
    ]
  }]
}
```

where

Parameter	Description and Example Value
bundleId	ID of the ESXi upgrade bundle you downloaded. You can retrieve the bundle ID by navigating to the Repository > Bundles page and clicking View Details to view the bundle ID. For example, 8c0de63d-b522-4db8-be6c-f1e0ab7ef554. Cloud Foundation
targetEsxVersion	ESXi version in the custom image to be applied.
useVcfBundle	Specifies whether the ESXi bundle is to be used for the upgrade. Set this to true.
esxPatchesAbsolutePaths	Path to the async drivers on the SDDC Manager VM. For example, /nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-drivers/drivers/VMW-ESX-6.7.0-smartpgi-1.0.2.1038-offline_bundle-8984687.zip

Here is an example of a completed JSON template.

```
{
  "esxCustomImageSpecList": [{
    "bundleId": "8c0de63d-b522-4db8-be6c-f1e0ab7ef554",
    "useVcfBundle": true,
    "esxPatchesAbsolutePaths": [
      "/nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-drivers/drivers/VMW-ESX-6.7.0-smartpgi-1.0.2.1038-offline_bundle-8984687.zip"
    ]
  }]
}
```



```
smartpgi-1.0.2.1038-offline_bundle-8984687.zip"
]
}}
}
```

- 8 Save the JSON file as `esx-custom-image-upgrade-spec.json` in the `/nfs/vmware/vcf/nfs-mount`.

Note If the JSON file is not saved in the correct directory, the stock Cloud Foundation ISO is used for the upgrade and the custom VIBs are overwritten.

- 9 Set the correct permissions on the `/nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json` file:

```
chmod -R 775 /nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json
chown -R vcf_lcm:vcf /nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json
```

- 10 Open the `/opt/vmware/vcf/lcm/lcm-app/conf/application-prod.properties` file.

- 11 In the `lcm.esx.upgrade.custom.image.spec=` parameter, add the path to the JSON file.

For example, `lcm.esx.upgrade.custom.image.spec=/nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json`

- 12 On the SDDC Manager Dashboard, click **Inventory > Workload Domains**.
- 13 Click the management domain and then click **Updates/Patches**.
- 14 Schedule the ESXi upgrade bundle.
- 15 Monitor the upgrade progress. See [Chapter 9 Monitor Updates](#).
- 16 After the upgrade is complete, confirm the ESXi version by clicking **Current Versions**. The ESXi hosts table displays the current ESXi version.

Skip Hosts During ESXi Update



You can skip hosts while applying an ESXi update to the management domain or a VI workload domain. The skipped hosts are not updated.

Note

You cannot skip hosts that are part of a VI workload domain that is using vSphere Lifecycle Manager images, since these hosts are updated at the cluster-level and not the host-level.

Procedure

- 1 Using SSH, log in to the SDDC Manager VM with the user name `vcf` and password you specified in the deployment parameter sheet.
- 2 Type `su` to switch to the root account.
- 3 Retrieve the host IDs for the hosts you want to skip.

```
curl 'https://SDDC_MANAGER_IP/v1/hosts' -i -u 'username:password' -X GET -H 'Accept: application/json' |json_pp
```

Replace the SDDC Manager IP address, user name, and password with the information for your environment.

- 4 Copy the ids for the hosts you want to skip from the output. For example:

```
...
    "fqdn" : "esxi-2.vrack.vsphere.local",
    "esxiVersion" : "6.7.0-16075168",
    "hardwareVendor" : "VMware, Inc.",
    "cpu" : {
      "cpuCores" : [
        {
          "model" : "intel",
          "frequencyMHz" : 2394.375,
          "manufacturer" : "Intel(R) Xeon(R) Platinum 8260 CPU @
2.40GHz
        },
        {
          "frequencyMHz" : 2394.375,
          "manufacturer" : "Intel(R) Xeon(R) Platinum 8260 CPU @
2.40GHz
          "model" : "intel"
```

```

    },
    {
      "model" : "intel",
      "frequencyMHz" : 2394.375,
      "manufacturer" : "Intel(R) Xeon(R) Platinum 8260 CPU @
2.40GHz
    },
    {
      "model" : "intel",
      "manufacturer" : "Intel(R) Xeon(R) Platinum 8260 CPU @
2.40GHz
      "frequencyMHz" : 2394.375
    },
    {
      "model" : "intel",
      "manufacturer" : "Intel(R) Xeon(R) Platinum 8260 CPU @
2.40GHz
      "frequencyMHz" : 2394.375
    },
    {
      "frequencyMHz" : 2394.375,
      "manufacturer" : "Intel(R) Xeon(R) Platinum 8260 CPU @
2.40GHz
      "model" : "intel"
    },
    {
      "frequencyMHz" : 2394.375,
      "manufacturer" : "Intel(R) Xeon(R) Platinum 8260 CPU @
2.40GHz
      "model" : "intel"
    },
    {
      "model" : "intel",
      "manufacturer" : "Intel(R) Xeon(R) Platinum 8260 CPU @
2.40GHz
      "frequencyMHz" : 2394.375
    }
  ],
  "frequencyMHz" : 19155,
  "usedFrequencyMHz" : 1892,
  "cores" : 8
},
"physicalNics" : [
  {
    "deviceName" : "vmnic0",
    "macAddress" : "00:50:56:a1:cf:47"
  },
  {
    "deviceName" : "vmnic1",
    "macAddress" : "00:50:56:a1:8b:71"
  }
],
"bundleRepoDatastore" : "lcm-bundle-repo",
"hybrid" : false,
"memory" : {

```

```

        "totalCapacityMB" : 79995.421875,
        "usedCapacityMB" : 22571
    },
    "id" : "b318fe37-f9a8-48b6-8815-43aae5131b94",
    ...

```

In this case, the id for `esxi-2.vrack.vsphere.local` is `b318fe37-f9a8-48b6-8815-43aae5131b94`.

- 5 Open the `/opt/vmware/vcf/lcm/lcm-app/conf/application-prod.properties` file.

- 6 At the end of the file, add the following line:

```
esx.upgrade.skip.host.ids=hostid1,hostid2
```

Replace the host ids with the information from step 4. If you are including multiple host ids, do not add any spaces between them. For example:

```
esx.upgrade.skip.host.ids=60927f26-8910-4dd3-8435-8bb7aef5f659,6c516864-b6de-4537-90e4-c0d711e5befb65c206aa-2561-420e-8c5c-e51b9843f93d
```

- 7 Save and close the file.
- 8 Ensure that the ownership of the `application-prod.properties` file is `vcf_lcm:vcf`.
- 9 Restart the LCM server by typing the following command in the console window:

```
systemctl restart lcm
```

Results

The hosts added to the `application-prod.properties` are not updated when you update the workload domain.

Monitor Updates

9

Monitor the update progress for your workload domain

Procedure

- 1 In the In-Progress Updates section, click **View Status** to view the high-level update progress and the number of components to be updated.
- 2 Details of the component being updated is shown below that. The image below is an example and may not reflect the actual versions.

VMware Cloud Foundation Update Status

VMware Cloud Foundation Update 4.0.1.0 0 / 8 Resources Updated [CANCEL](#)

Released 06/23/2020 11 GB
This VMware Cloud Foundation Upgrade 4.0.0.1 to 4.0.1.0 contains features, critical bugs and security fixes. For more information, see <https://docs.vmware.com/en/VMware-Cloud-Foundation/4.01/en/VMware-Cloud-Foundation-401-Release-Notes.html>

Updating COMMON SERVICES VIEW UPDATE ACTIVITY

> SDDC MANAGER In Progress 4.0.0.1-16221345 → 4.0.1.0-16308622

- 3 Click the arrow to see a list of tasks being performed to update the component. As the task is completed, it shows a green check mark.

VMware Cloud Foundation Update Status

VMware Cloud Foundation Update 4.0.1.0 1 / 8 Resources Updated [CANCEL](#)

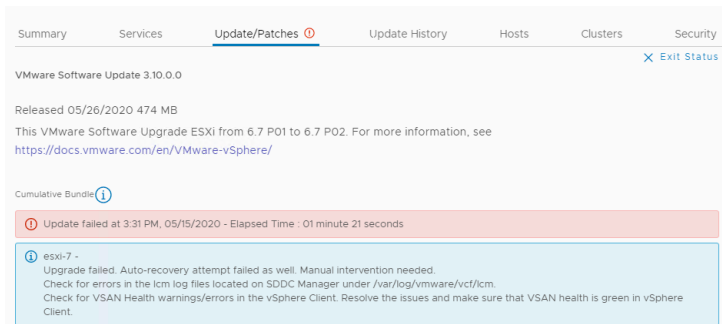
Released 06/23/2020 11 GB
This VMware Cloud Foundation Upgrade 4.0.0.1 to 4.0.1.0 contains features, critical bugs and security fixes. For more information, see <https://docs.vmware.com/en/VMware-Cloud-Foundation/4.01/en/VMware-Cloud-Foundation-401-Release-Notes.html>

Updating OPERATIONS MANAGER VIEW UPDATE ACTIVITY

▼ SDDC MANAGER	In Progress	4.0.0.1-16221345 → 4.0.1.0-16308622
> COMMON SERVICES	Updated 1	
> OPERATIONS MANAGER	In Progress	
DOMAIN MANAGER	Queued	
SOLUTIONS MANAGER	Queued	
SDDC MANAGER UI	Queued	
LCM	Queued	
MULTI SITE SERVICE	Queued	

- 4 When all tasks to update a component have been completed, the update status for the component is displayed as Updated.

- 5 If a component fails to be updated, the status is displayed as Failed. The reason for the failure as well as remediation steps are displayed. The image below is an example and may not reflect the actual versions in your environment.



- 6 After you resolve the issues, you can retry the update.

What to do next

Once all upgrades have completed successfully:

- 1 Remove the VM snapshots you took before starting the update.
- 2 Take a backup of the newly installed components.

View Update History

10

The Update History page displays all updates applied to a workload domain.

Procedure

- 1 In the SDDC Manager Dashboard, click **Inventory > Workload Domains**..
- 2 Click the name of a workload domain and then click the **Updates History** tab.

All updates applied to this workload domain are displayed. If an update bundle was applied more than once, click **View Past Attempts** to see more information.

Access Upgrade Log Files

11

- 1 Log in to the SDDC Manager VM with the `vcf` user name and the password you specified in the deployment parameter sheet.
- 2 To access upgrade logs, navigate to the `/var/log/vmware/vcf/lcm` directory.
 - `lcm-debug` log file contains debug level logging information.
 - `lcm.log` contains information level logging.
- 3 To create an sos bundle for support, see Supportability and Serviceability (SoS) Utility in the *VMware Cloud Foundation Operations and Administration Guide*.