



Upgrading Firmware through Firmware Packages in Service Profiles

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Firmware Upgrades through Firmware Packages in Service Profiles

You can use firmware packages in service profiles to upgrade the server firmware, including the BIOS on the server, by defining a host firmware policy and including it in the service profile associated with a server.

You cannot upgrade the firmware on the CMC, shared adapter, storage controller, board controller, fabric interconnect, or Cisco UCS Manager through service profiles. You must upgrade the firmware on those endpoints directly.



Note

Cisco UCS no longer supports the creation of new management firmware packages. You can modify and update existing management firmware packages, if desired. However, we recommend that you remove the management firmware packages from all service profiles and use host firmware packages to update the Cisco Integrated Management Controller (CIMC) on the servers.

Host Firmware Package

This policy enables you to specify a set of firmware versions that make up the host firmware package (also known as the host firmware pack). The host firmware package includes the following firmware for server endpoints:

- CIMC
- BIOS
- Board controller

**Tip**

You can include more than one type of firmware in the same host firmware package. For example, a host firmware package can include the BIOS firmware, CIMC firmware, and board controller firmware. The system recognizes which firmware version is required for an endpoint and ignores all other firmware versions.

The firmware package is pushed to all servers associated with service profiles that include this policy.

This policy ensures that the host firmware is identical on all servers associated with service profiles which use the same policy. Therefore, if you move the service profile from one server to another, the firmware versions are maintained. Also, if you change the firmware version for an endpoint in the firmware package, new versions are applied to all the affected service profiles immediately, which could cause server reboots.

You must include this policy in a service profile, and that service profile must be associated with a server for it to take effect.

This policy is not dependent upon any other policies. However, you must ensure that the appropriate firmware has been downloaded to the fabric interconnect. If the firmware image is not available when Cisco UCS Manager is associating a server with a service profile, Cisco UCS Manager ignores the firmware upgrade and completes the association.

Management Firmware Package

**Note**

Cisco UCS no longer supports the creation of new management firmware packages. You can modify and update existing management firmware packages, if desired. However, we recommend that you remove the management firmware packages from all service profiles and use host firmware packages to update the Cisco Integrated Management Controller (CIMC) on the servers.

This policy enables you to specify a set of firmware versions that make up the management firmware package (also known as a management firmware pack). The management firmware package includes the Cisco Integrated Management Controller (CIMC) on the server. You do not need to use this package if you upgrade the CIMC directly.

The firmware package is pushed to all servers associated with service profiles that include this policy. This policy ensures that the CIMC firmware is identical on all servers associated with service profiles which use the same policy. Therefore, if you move the service profile from one server to another, the firmware versions are maintained.

You must include this policy in a service profile, and that service profile must be associated with a server for it to take effect.

This policy is not dependent upon any other policies. However, you must ensure that the appropriate firmware has been downloaded to the fabric interconnect.

Stages of a Firmware Upgrade through Firmware Packages in Service Profiles

You can use the host firmware package policies in service profiles to upgrade server and adapter firmware.



Caution

Unless you have configured and scheduled a maintenance window, if you modify a host firmware package by adding an endpoint or changing firmware versions for an existing endpoint, Cisco UCS Manager upgrades the endpoints and reboots all servers associated with that firmware package as soon as the changes are saved, disrupting data traffic to and from the servers.

New Service Profile

For a new service profile, this upgrade takes place over the following stages:

Firmware Package Policy Creation

During this stage, you create the host firmware packages.

Service Profile Association

During this stage, you include the firmware packages in a service profile, and then associate the service profile with a server. The system pushes the selected firmware versions to the endpoints. The server must be rebooted to ensure that the endpoints are running the versions specified in the firmware package.

Existing Service Profile

For service profiles that are associated with servers, Cisco UCS Manager upgrades the firmware and reboots the server as soon as you save the changes to the firmware packages unless you have configured and scheduled a maintenance window. If you configure and schedule a maintenance window, Cisco UCS Manager defers the upgrade and server reboot until then.

Effect of Updates to Firmware Packages in Service Profiles

To update firmware through a firmware package in a service profile, you need to update the firmware in the package. What happens after you save the changes to a firmware package depends upon how the Cisco UCS domain is configured.

The following table describes the most common options for upgrading servers with a firmware package in a service profile.

Service Profile	Maintenance Policy	Upgrade Actions
<p>Firmware package is not included in a service profile or an updating service profile template.</p> <p>OR</p> <p>You want to upgrade the firmware without making any changes to the existing service profile or updating service profile template.</p>	<p>No maintenance policy</p>	<p>After you update the firmware package, do one of the following:</p> <ul style="list-style-type: none"> • To reboot and upgrade some or all servers simultaneously, add the firmware package to one or more service profiles that are associated with servers or to an updating service profile template. • To reboot and upgrade one server at a time, do the following for each server: <ol style="list-style-type: none"> 1 Create a new service profile and include the firmware package in that service profile. 2 Dissociate the server from its service profile. 3 Associate the server with the new service profile. 4 After the server has been rebooted and the firmware upgraded, disassociate the server from the new service profile and associate it with its original service profile. <p>Caution If the original service profile includes a scrub policy, disassociating a service profile may result in data loss when the disk or the BIOS is scrubbed upon association with the new service profile.</p>
<p>The firmware package is included in one or more service profiles, and the service profiles are associated with one or more servers.</p> <p>OR</p> <p>The firmware package is included in an updating service profile template, and the service profiles created from that template are associated with one or more servers.</p>	<p>No maintenance policy</p> <p>OR</p> <p>A maintenance policy configured for immediate updates.</p>	<p>The following occurs when you update the firmware package:</p> <ol style="list-style-type: none"> 1 The changes to the firmware package take effect as soon as you save them. 2 Cisco UCS verifies the model numbers and vendor against all servers associated with service profiles that include this policy. If the model numbers and vendor match a firmware version in the policy, Cisco UCS reboots the servers and updates the firmware. <p>All servers associated with service profiles that include the firmware package are rebooted at the same time.</p>

Service Profile	Maintenance Policy	Upgrade Actions
<p>The firmware package is included in one or more service profiles, and the service profiles are associated with one or more servers.</p> <p>OR</p> <p>The firmware package is included in an updating service profile template, and the service profiles created from that template are associated with one or more servers.</p>	<p>Configured for user acknowledgment</p>	<p>The following occurs when you update the firmware package:</p> <ol style="list-style-type: none"> 1 Cisco UCS asks you to confirm your change and advises that a user-acknowledged reboot of the servers is required. 2 Click the flashing Pending Activities button to select the servers you want to reboot and apply the new firmware. 3 Cisco UCS verifies the model numbers and vendor against all servers associated with service profiles that include this policy. If the model numbers and vendor match a firmware version in the policy, Cisco UCS reboots the server and updates the firmware. <p>A manual reboot of the servers does not cause Cisco UCS to apply the firmware package, nor does it cancel the pending activities. You must acknowledge or cancel the pending activity through the Pending Activities button.</p>
<p>The firmware package is included in one or more service profiles, and the service profiles are associated with one or more servers.</p> <p>OR</p> <p>The firmware package is included in an updating service profile template, and the service profiles created from that template are associated with one or more servers.</p>	<p>Configured for changes to take effect during a specific maintenance window.</p>	<p>The following occurs when you update the firmware package:</p> <ol style="list-style-type: none"> 1 Cisco UCS asks you to confirm your change and advises that a user-acknowledged reboot of the servers is required. 2 Click the flashing Pending Activities button to select the servers you want to reboot and apply the new firmware. 3 Cisco UCS verifies the model numbers and vendor against all servers associated with service profiles that include this policy. If the model numbers and vendor match a firmware version in the policy, Cisco UCS reboots the server and updates the firmware. <p>A manual reboot of the servers does not cause Cisco UCS to apply the firmware package, nor does it cancel the scheduled maintenance activities.</p>

Creating a Host Firmware Package



Tip

You can include more than one type of firmware in the same host firmware package. For example, a host firmware package can include both BIOS firmware and storage controller firmware or adapter firmware for two different models of adapters. However, you can only have one firmware version with the same type, vendor, and model number. The system recognizes which firmware version is required for an endpoint and ignores all other firmware versions.

Before You Begin

Ensure that the appropriate firmware was downloaded to the fabric interconnect.

Procedure

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- Step 1** In the **Navigation** pane, click the **Servers** tab.
 - Step 2** On the **Servers** tab, expand **Servers > Policies**.
 - Step 3** Expand the node for the organization where you want to create the policy.
If the system does not include multitenancy, expand the **root** node.
 - Step 4** Right-click **Host Firmware Packages** and choose **Create Host Firmware Package**.
 - Step 5** In the **Create Host Firmware Package** dialog box, enter a unique name and description for the package. This name can be between 1 and 32 alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen), _ (underscore), : (colon), and . (period), and you cannot change this name after the object is saved.
 - Step 6** Select **Advanced** Host Firmware Package configuration.
 - Step 7** On each subtab, do the following for each type of firmware you want to include in the package:
 - a) In the **Select** column, ensure that the check box for the appropriate lines are checked.
 - b) In the **Vendor**, **Model**, and **PID** columns, verify that the information matches the servers you want to update with this package.
The model and model number (PID) must match the servers that are associated with this firmware package. If you select the wrong model or model number, Cisco UCS Manager cannot install the firmware update.
 - c) In the **Version** column, choose the firmware version to which you want to update the firmware.
 - Step 8** When you have added all the desired firmware to the package, click **OK**.
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What to Do Next

Include the policy in a service profile and/or template.

Updating a Host Firmware Package

If the policy is included in one or more service profiles associated with a server and those service profiles do not include maintenance policies, Cisco UCS Manager updates and activates the firmware in the server and

adapter with the new versions and reboots the server as soon as you save the host firmware package policy unless you have configured and scheduled a maintenance window.

Before You Begin

Ensure that the appropriate firmware was downloaded to the fabric interconnect.

Procedure

- Step 1** In the **Navigation** pane, click the **Servers** tab.
 - Step 2** On the **Servers** tab, expand **Servers > Policies**.
 - Step 3** Expand the node for the organization that includes the policy you want to update. If the system does not include multitenancy, expand the **root** node.
 - Step 4** Expand **Host Firmware Packages** and choose the policy you want to update.
 - Step 5** In the **Work** pane, click the **General** tab.
 - Step 6** On each subtab, do the following for each type of firmware you want to include in the package:
 - a) In the **Select** column, ensure that the check box for the appropriate lines are checked.
 - b) In the **Vendor**, **Model**, and **PID** columns, verify that the information matches the servers you want to update with this package.

The model and model number (PID) must match the servers that are associated with this firmware package. If you select the wrong model or model number, Cisco UCS Manager cannot install the firmware update.
 - c) In the **Version** column, choose the firmware version to which you want to update the firmware.
 - Step 7** Click **Save Changes**.

Cisco UCS Manager verifies the model numbers and vendor against all servers associated with service profiles that include this policy. If the model numbers and vendor match a firmware version in the policy, Cisco UCS Manager updates the firmware according to the settings in the maintenance policies included in the service profiles.
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Updating a Management Firmware Package



Note

Cisco UCS no longer supports the creation of new management firmware packages. You can modify and update existing management firmware packages, if desired. However, we recommend that you remove the management firmware packages from all service profiles and use host firmware packages to update the Cisco Integrated Management Controller (CIMC) on the servers.

If the policy is included in one or more service profiles associated with a server and those service profiles do not include maintenance policies, Cisco UCS Manager updates and activates the management firmware in the server with the new versions and reboots the server as soon as you save the management firmware package policy unless you have configured and scheduled a maintenance window.

Before You Begin

Ensure that the appropriate firmware was downloaded to the fabric interconnect.

Procedure

- Step 1** In the **Navigation** pane, click the **Servers** tab.
- Step 2** On the **Servers** tab, expand **Servers > Policies**.
- Step 3** Expand the node for the organization that includes the policy you want to update.
If the system does not include multitenancy, expand the **root** node.
- Step 4** Expand **Management Firmware Packages** and choose the policy you want to update.
- Step 5** In the **Work** pane, click the **General** tab.
- Step 6** In the firmware table, do the following:
- In the **Select** column, ensure that the check box for the appropriate lines are checked.
 - In the **Vendor**, **Model**, and **PID** columns, verify that the information matches the servers you want to update with this package.
The model and model number (PID) must match the servers that are associated with this firmware package.
If you select the wrong model or model number, Cisco UCS Manager cannot install the firmware update.
 - In the **Version** column, choose the firmware version to which you want to update the firmware.
- Step 7** Click **Save Changes**.
Cisco UCS Manager verifies the model numbers and vendor against all servers associated with service profiles that include this policy. If the model numbers and vendor match a firmware version in the policy, Cisco UCS Manager updates the firmware according to the settings in the maintenance policies included in the service profiles.
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Adding Firmware Packages to an Existing Service Profile

If the service profile does not include a maintenance policy and is associated with a server, Cisco UCS Manager updates and activates the firmware in the server with the new versions and reboots the server as soon as you save the changes to the service profile.

Procedure

- Step 1** In the **Navigation** pane, click the **Servers** tab.
- Step 2** On the **Servers** tab, expand **Servers > Service Profiles**.
- Step 3** Expand the node for the organization that includes the service profile that you want to update.
If the system does not include multitenancy, expand the **root** node.

- Step 4** Click the service profile to which you want to add the firmware packages.
 - Step 5** In the **Work** pane, click the **Policies** tab.
 - Step 6** Click the down arrows to expand the **Firmware Policies** section.
 - Step 7** To add a host firmware package, select the desired policy from the **Host Firmware** drop-down list.
 - Step 8** To add a management firmware package, select the desired policy from the **Management Firmware** drop-down list.
 - Step 9** Click **Save Changes**.
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