



# Deferred Deployments of Service Profile Updates

- [Service Profile Deferred Deployments, on page 1](#)
- [Maintenance Policy, on page 3](#)
- [Pending Activities for Deferred Deployments, on page 7](#)

## Service Profile Deferred Deployments

Some modifications to a service profile or to an updating service profile template can be disruptive and require a reboot of the server. You can, however, configure deferred deployment to control when those disruptive configuration changes are implemented. For example, you can choose to deploy the service profile changes immediately or have them deployed during a specified maintenance window. You can also choose whether or not a service profile deployment requires explicit user acknowledgment.

Deferred deployment is available for all configuration changes that occur through the association of a service profile with a server. These configuration changes can be prompted by a change to a service profile, to a policy that is included in a service profile, or to an updating service profile template. For example, you can defer the upgrade and activation of firmware through host firmware packages and management firmware packages, such as server BIOS, RAID controller, host HBA, and network adapters. However, you cannot defer the direct deployment of firmware images for components that do not use either of the firmware packages, such as Cisco UCS Manager, fabric interconnects, and I/O modules.

Deferred deployment is not available for the following actions which require the reboot of a server:

- Initial association of a service profile with a server
- Final disassociation of a service profile from a server, without associating the service profile with a different server
- Decommissioning a server
- Re-acknowledging a server
- Resetting a server

If you want to defer the deployment of service profile changes, you must configure one or more maintenance policies and configure each service profile with a maintenance policy. If you want to define the time period when the deployment should occur, you also need to create at least one schedule with one or more recurring occurrences or one time occurrences, and include that schedule in a maintenance policy.

## Schedules for Deferred Deployments

A schedule contains a set of occurrences. These occurrences can be one time only or can recur at a specified time and day each week. The options defined in the occurrence, such as the duration of the occurrence or the maximum number of tasks to be run, determine whether a service profile change is deployed. For example, if a change cannot be deployed during a given maintenance window because the maximum duration or number of tasks was reached, that deployment is carried over to the next maintenance window.

Each schedule checks periodically to see whether the Cisco UCS domain entered one or more maintenance windows. If so, the schedule executes the deployments that are eligible according to the constraints specified in the maintenance policy.

A schedule contains one or more occurrences, which determine the maintenance windows associated with that schedule. An occurrence can be one of the following:

### One Time Occurrence

One time occurrences define a single maintenance window. These windows continue until the maximum duration of the window or the maximum number of tasks that can be run in the window is reached.

### Recurring Occurrence

Recurring occurrences define a series of maintenance windows. These windows continue until the maximum number of tasks or the end of the day specified in the occurrence was reached.

## Guidelines and Limitations for Deferred Deployments

### Service Profile Association Changes and Maintenance Policy Options

When changing service profile association, the following maintenance policy options can affect how the changes are applied:

- If the **On Next Boot** and **User Ack** options are enabled in a maintenance policy, the service profile association change displays a warning that an acknowledgement is required. However, association will happen immediately.
- If the **On Next Boot** and **User Ack** options are not enabled in a maintenance policy, the service profile association change displays a warning that an acknowledgement is required, and will remain pending until acknowledged.

### Cannot Undo All Changes to Service Profiles or Service Profile Templates

If you cancel a pending change, Cisco UCS Manager attempts to roll back the change without rebooting the server. However, for complex changes, Cisco UCS Manager may have to reboot the server a second time to roll back the change. For example, if you delete a vNIC, Cisco UCS Manager reboots the server according to the maintenance policy included in the service profile. You cannot cancel this reboot and change, even if you restore the original vNIC in the service profile. Instead, Cisco UCS Manager schedules a second deployment and reboot of the server.

### Association of Service Profile Can Exceed Boundaries of Maintenance Window

After Cisco UCS Manager begins the association of the service profile, the scheduler and maintenance policy do not have any control over the procedure. If the service profile association does not complete within the

allotted maintenance window, the process continues until it is completed. For example, this can occur if the association does not complete in time because of retried stages or other issues.

### Cannot Specify Order of Pending Activities

Scheduled deployments run in parallel and independently. You cannot specify the order in which the deployments occur. You also cannot make the deployment of one service profile change dependent upon the completion of another.

### Cannot Perform Partial Deployment of Pending Activity

Cisco UCS Manager applies all changes made to a service profile in the scheduled maintenance window. You cannot make several changes to a service profile at the same time and then have those changes be spread across several maintenance windows. When Cisco UCS Manager deploys the service profile changes, it updates the service profile to match the most recent configuration in the database.

## Maintenance Policy

The maintenance policy specifies how deploys the service profile changes. The deployment can occur in one of the following ways:

- Immediately
- When acknowledged by a user with administrator privileges
- Automatically at the time specified in a schedule
- On the next reboot or shutdown without waiting for the user acknowledgment or the timer scheduling option

A UCSM and CIMC version on blade or rack server must be running firmware from 3.1.x bundle, for **On Next Boot** to work.

If the **On Next Boot** option is enabled in a maintenance policy, and you downgrade from Cisco UCS Manager Release 3.1(1) or later releases to any release earlier than Cisco UCS Manager Release 2.2(8), firmware downgrade will fail. Disable **On Next Boot** from the maintenance policy to continue with the downgrade.

You can use the soft shutdown timer in the maintenance policy to configure the wait time for performing a hard shutdown. The soft shutdown timer is applicable when you reboot the server for the following:

- Reset the server using the **Gracefully Restart OS** option.
- Shut down the server with the **In case of graceful shutdown failure, a hard shutdown will be issued after X seconds** option.
- Modify a service profile that requires a server reboot.

If the maintenance policy is configured to deploy the change during a scheduled maintenance window, the policy must include a valid schedule. The schedule deploys the changes in the first available maintenance window.



**Note** A maintenance policy only prevents an immediate server reboot when a configuration change is made to an associated service profile. However, a maintenance policy does not prevent the following actions from taking place right away:

- Deleting an associated service profile from the system
- Disassociating a server profile from a server
- Directly installing a firmware upgrade without using a service policy
- Resetting the server

## Creating a Maintenance Policy

### Before you begin

If you plan to configure this maintenance policy for automatic deferred deployment, create a schedule.

### Procedure

- Step 1** In the **Navigation** pane, click **Servers**.
- Step 2** Expand **Servers > Policies**.
- Step 3** Expand the node for the organization where you want to create the policy.  
If the system does not include multi tenancy, expand the **root** node.
- Step 4** Right-click **Maintenance Policies** and choose **Create Maintenance Policy**.
- Step 5** In the **Create Maintenance Policy** dialog box, complete the following fields:

Name	Description
Name field	<p>The name of the policy.</p> <p>This name can be between 1 and 16 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.</p>
Description field	<p>A description of the policy. Cisco recommends including information about where and when to use the policy.</p> <p>Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</p>

Name	Description
<b>Soft Shutdown Timer</b> drop-down list	<p>This timer allows you to specify the time in seconds when Cisco UCS Manager performs a server shut down and reboot. Cisco UCS Manager waits until the specified time in the maintenance policy before performing a hard shut down. This can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>150 Secs</b>—Cisco UCS Manager waits until 150 seconds before performing a hard shut down and reboot of the server.</li><li>• <b>300 Secs</b>—Cisco UCS Manager waits until 300 seconds before performing a hard shut down and reboot of the server.</li><li>• <b>600 Secs</b>—Cisco UCS Manager waits for 600 seconds before performing a hard shut down and reboot of the server.</li><li>• <b>Never</b>—Cisco UCS Manager never performs a server shut down.</li></ul>

Name	Description
<b>Reboot Policy</b> field	<p>When a service profile is associated with a server, or when changes are made to a service profile that is already associated with a server, you must reboot the server to complete the process. The <b>Reboot Policy</b> field determines when the reboot occurs for servers associated with any service profiles that include this maintenance policy. This can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>Immediate</b>—The server reboots automatically as soon as the service profile association is complete or when you save service profile changes.</li> <li>• <b>User Ack</b>—You must explicitly acknowledge the pending activities for the changes made to the service profile to be applied to the associated server.</li> <li>• <b>Timer Automatic</b>—Cisco UCS defers all service profile associations and changes until the maintenance window defined by the schedule shown in the <b>Schedule</b> field.</li> <li>• <b>On Next Boot</b>—This option is used in combination with either <b>User Ack</b> or <b>Timer Automatic</b>. When the <b>On Next Boot</b> option is enabled, the host OS reboot, shutdown, and reset, or server reset and shutdown also triggers the associated FSM to apply the changes waiting for the <b>User Ack</b>, or the <b>Timer Automatic</b> maintenance window.</li> </ul> <p><b>Note</b> De-selecting the On Next Boot option disables the Maintenance Policy on the BMC.</p>
<b>Schedule</b> drop-down list	If the <b>Reboot Policy</b> is set to <b>Timer Automatic</b> , the schedule specifies when maintenance operations can be applied to the server. Cisco UCS reboots the server and completes the service profile changes at the scheduled time.
<b>Create Schedule</b> link	Creates a new schedule that is available to all objects in this Cisco UCS domain.

**Step 6**Click **OK**.

**What to do next**

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

## Deleting a Maintenance Policy

**Procedure**

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- Step 1** In the **Navigation** pane, click **Servers**.
  - Step 2** Expand **Servers > Policies > Organization\_Name**.
  - Step 3** Expand **Maintenance Policies**.
  - Step 4** Right-click the maintenance policy you want to delete and choose **Delete**.
  - Step 5** If a confirmation dialog box displays, click **Yes**.
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## Pending Activities for Deferred Deployments

If you configure a deferred deployment in a Cisco UCS domain, Cisco UCS Manager enables you to view all pending activities. You can see activities that are waiting for user acknowledgement and those that are scheduled.

If a Cisco UCS domain has pending activities, Cisco UCS Manager GUI notifies users with admin privileges when they log in.

Cisco UCS Manager displays information about all pending activities, including the following:

- Name of the service profile to deploy and associate with a server
- Server affected by the deployment
- Disruption caused by the deployment
- Change performed by the deployment



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- Note** You cannot specify the maintenance window in which a specific pending activity is applied to the server. The maintenance window depends upon how many activities are pending and which maintenance policy is assigned to the service profile. However, any user with admin privileges can manually initiate a pending activity and reboot the server immediately, whether it is waiting for user acknowledgment or for a maintenance window.
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## Viewing Pending Activities

**Procedure**

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- Step 1** On the toolbar, click **Pending Activities**.

- Step 2** Click one of the following tabs:
- **User Acknowledged Activities**—Contains the **Service Profiles** and **Fabric Interconnects** tabs that display the tasks requiring user acknowledgment before they can complete.
  - **Scheduled Activities**—Displays the tasks that will be performed based on the associated maintenance schedule.
- Step 3** Click a row in the table to view the details of that pending activity.  
If you click the link in the **Server** column, Cisco UCS Manager displays the properties of that server.

## Deploying a Service Profile Change Waiting for User Acknowledgement



**Important** You cannot stop Cisco UCS Manager from rebooting the affected server after you acknowledge a pending activity.

### Procedure

- Step 1** On the toolbar, click **Pending Activities**.
- Step 2** In the **Pending Activities** dialog box, click the **User Acknowledged Activities** tab and then the **Service Profiles** tab.
- Step 3** Check the check box in the **Reboot Now** column for each pending activity you want to deploy immediately.
- Step 4** Click **OK**.  
Cisco UCS Manager immediately reboots the server affected by the pending activity.

## Deploying All Service Profile Changes Waiting for User Acknowledgement



**Important** You cannot stop Cisco UCS Manager from rebooting the affected server after you acknowledge a pending activity.

### Procedure

- Step 1** On the toolbar, click **Pending Activities**.
- Step 2** In the **Pending Activities** dialog box, click the **User Acknowledged Activities** tab and then the **Service Profiles** tab.
- Step 3** In the toolbar, check the **Acknowledge All** check box.



Cisco UCS Manager GUI checks the **Reboot Now** check boxes for all pending activities listed in the table.

**Step 4** Click **OK**.

Cisco UCS Manager immediately reboots all servers affected by the pending activities listed in the table.

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## Deploying a Scheduled Service Profile Change Immediately



**Important** You cannot stop Cisco UCS Manager from rebooting the affected server after you acknowledge a pending activity.

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### Procedure

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**Step 1** On the toolbar, click **Pending Activities**.

**Step 2** In the **Pending Activities** dialog box, click the **Scheduled Activities** tab.

**Step 3** Check the check box in the **Reboot Now** column for each pending activity you want to deploy immediately.

**Step 4** Click **OK**.

Cisco UCS Manager immediately reboots the server affected by the pending activity.

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## Deploying All Scheduled Service Profile Changes Immediately



**Important** You cannot stop Cisco UCS Manager from rebooting the affected server after you acknowledge a pending activity.

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### Procedure

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**Step 1** On the toolbar, click **Pending Activities**.

**Step 2** In the **Pending Activities** dialog box, click the **Scheduled Activities** tab.

**Step 3** In the toolbar, check the **Acknowledge All** check box.

Cisco UCS Manager GUI checks the **Reboot Now** check boxes for all pending activities listed in the table.

**Step 4** Click **OK**.

Cisco UCS Manager immediately reboots all servers affected by the pending activities listed in the table.

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