



# Deferred Deployments of Service Profile Updates

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

## 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



---

**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.

---

# 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 Configuration

## 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 deferred deployment, create a schedule.

## Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope org</b> <i>org-name</i>	Enters organization mode for the specified organization. To enter the root organization mode, type / as the <i>org-name</i> .
<b>Step 2</b>	UCS-A /org # <b>create maint-policy</b> <i>policy-name</i>	Creates the specified maintenance policy and enters maintenance policy mode.
<b>Step 3</b>	UCS-A /org/maint-policy # <b>set reboot-policy</b> { <b>immediate</b>   <b>timer-automatic</b>   <b>user-ack</b> }   <b>on next boot</b>	<p>When a service profile is associated with a server, the server needs to be rebooted to complete the association. Specifying the <b>reboot-policy</b> command determines when the reboot occurs for all service profiles that include this maintenance policy. Possible values include:</p> <ul style="list-style-type: none"> <li>• <b>immediate</b>--The server reboots as soon as the change is made to the service profile.</li> <li>• <b>timer-automatic</b> --You select the schedule that specifies when maintenance operations can be applied to the server using the <b>set scheduler</b> command. Cisco UCS reboots the server and completes the service profile changes at the scheduled time.</li> <li>• <b>user-ack</b> --The user must explicitly acknowledge the changes by using the <b>apply pending-changes</b> command before changes are applied.</li> </ul>
<b>Step 4</b>	UCS-A /org/maint-policy # { <b>enable</b>   <b>disable</b> } <b>on-next-boot</b>	<p>Enabling this option reboots the server automatically during the next reboot or shutdown after the service profile association is complete, without having to wait for the User Ack or the Timer Automatic maintenance window Schedule option.</p> <p><b>Note</b> De-selecting the <b>On Next Boot</b> option disables the Maintenance Policy on the BMC.</p> <p>If the <b>reboot-policy</b> is set to <b>timer-automatic</b> or <b>user-ack</b>, enabling this option means the changes will be applied whenever the server reboots, even if that reboot occurs outside a scheduled maintenance window or without user acknowledgment.</p>

	Command or Action	Purpose
<b>Step 5</b>	(Optional) UCS-A /org/maint-policy # <b>set scheduler</b> <i>scheduler-name</i>	If the reboot-policy property is set to timer-automatic, you must select the schedule that 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>Step 6</b>	UCS-A /org/maint-policy # <b>commit-buffer</b>	Commits the transaction to the system configuration.

### Example

The following example creates a maintenance policy called maintenance, sets the system to reboot immediately when a service profile is associated with a server, and commits the transaction:

```
UCS-A# scope org /
UCS-A /org # create maint-policy maintenance
UCS-A /org/maint-policy* # set reboot-policy immediate
UCS-A /org/maint-policy* # commit-buffer
UCS-A /org/maint-policy #
```

## Deleting a Maintenance Policy

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope org</b> <i>org-name</i>	Enters organization mode for the specified organization. To enter the root organization mode, type / as the <i>org-name</i> .
<b>Step 2</b>	UCS-A /org # <b>delete maint-policy</b> <i>policy-name</i>	Deletes the specified maintenance policy.
<b>Step 3</b>	UCS-A /org # <b>commit-buffer</b>	Commits the transaction to the system configuration.

### Example

The following example deletes a maintenance policy called maintenance and commits the transaction:

```
UCS-A# scope org /
UCS-A /org # delete maint-policy maintenance
UCS-A /org/maint-policy* # commit-buffer
UCS-A /org/maint-policy #
```

# Pending Activities

## 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



**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.

## Viewing Pending Activities

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope org</b> <i>org-name</i>	Enters organization mode.  To enter the root organization mode, type / as the <i>org-name</i> .
<b>Step 2</b>	UCS-A /org # <b>scope service-profile</b> <i>profile-name</i>	Enters organization service profile mode for the specified service.
<b>Step 3</b>	UCS-A /org/service-profile # <b>show pending-changes</b> [detail   expand]	Displays details about pending-changes.

### Example

The following example shows how to display pending changes for a service profile called accounting:

```

UCS-A# scope org /
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # show pending-changes detail

Pending Changes:
  Scheduler:
  Changed by: admin
  Acked by:
  Mod. date: 2010-09-20T20:36:09.254
  State: Untriggered
  Admin State: Untriggered
  Pend. Changes: 0
  Pend. Disr.: 0
UCS-A /org/service-profile #

```

## Deploying a Service Profile Change Waiting for User Acknowledgement

Cisco UCS Manager CLI cannot deploy all pending service profile changes (for multiple service profiles) waiting for user acknowledgement. To simultaneously deploy all pending service profile changes for multiple service profiles, use Cisco UCS Manager GUI.



### Important

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

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope org</b> <i>org-name</i>	Enters organization mode. To enter the root organization mode, type / as the <i>org-name</i> .
<b>Step 2</b>	UCS-A /org # <b>scope service-profile</b> <i>profile-name</i>	Enters organization service profile mode for the specified service.
<b>Step 3</b>	UCS-A /org/service-profile # <b>apply pending-changes immediate</b>	Applies the pending changes immediately. Cisco UCS Manager immediately reboots the server affected by the pending activity.

### Example

The following example shows how to apply pending changes for a service profile named accounting:

```

UCS-A# scope org /
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # apply pending-changes immediate
UCS-A /org/service-profile #

```



## Deploying a Scheduled Service Profile Change Immediately

Cisco UCS Manager CLI cannot deploy all scheduled service profile changes (for multiple service profiles) at the same time. To simultaneously deploy all scheduled service profile changes for multiple service profiles, use Cisco UCS Manager GUI.



### Important

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

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCS-A# <b>scope org</b> <i>org-name</i>	Enters organization mode. To enter the root organization mode, type / as the <i>org-name</i> .
<b>Step 2</b>	UCS-A /org # <b>scope service-profile</b> <i>profile-name</i>	Enters organization service profile mode for the specified service.
<b>Step 3</b>	UCS-A /org/service-profile # <b>apply pending-changes immediate</b>	Applies the pending changes immediately. Cisco UCS Manager immediately reboots the server affected by the pending activity.

### Example

The following example shows how to apply pending changes for a service profile called accounting:

```
UCS-A# scope org /
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # apply pending-changes immediate
UCS-A /org/service-profile #
```

