



# Firmware Management

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## Maintenance Groups

A maintenance group contains a collection of selected domains, or all of the domains assigned to a domain group, for which you want to update the firmware simultaneously. You can upgrade the firmware immediately, or with a schedule. You can require a user to acknowledge the upgrade, or it can start automatically.

A maintenance group tag, or value, allows you to group a collection of domains. You can group domains based on geographic location, job function, hardware, or any other business need. You can also apply a maintenance tag to all of the domains in a domain group.



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**Important**

A domain can only have one maintenance group tag assigned to it concurrently.

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## Creating a Domain Infrastructure Profile and Assigning a Tag

After you create tags, you can apply them to domains. Apply tags to domains through the GUI.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCSC # <b>connect policy-mgr</b>	Enters policy manager mode.
<b>Step 2</b>	UCSC(policy-mgr) # <b>scope org</b>	Scopes into the organization.

	Command or Action	Purpose
<b>Step 3</b>	UCSC(policy-mgr) /org # <b>create domain-infra-profile</b> <i>job-name</i>	Creates the infrastructure firmware policy mode.
<b>Step 4</b>	UCSC(policy-mgr) /org/domain-infra-profile # <b>set tag-name</b> <i>tag-name</i>	Creates a tag.
<b>Step 5</b>	UCSC(policy-mgr) /org/domain-infra-profile # <b>commit-buffer</b>	Commits the transaction to the system.

The following example shows how to create a domain infrastructure profile and a maintenance group tag

```
UCSC# connect policy-mgr
UCSC(policy-mgr) # scope org
UCSC(policy-mgr) /org # create domain-infra-profile batch1
UCSC(policy-mgr) /org/domain-infra-profile* # set tag-name Tag1
UCSC(policy-mgr) /org/domain-infra-profile* # commit-buffer
UCSC(policy-mgr) /org/domain-infra-profile #
```

## Viewing Tags

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCSC # <b>connect policy-mgr</b>	Enters policy manager mode.
<b>Step 2</b>	UCSC(policy-mgr) # <b>scope fabric</b>	Scopes into the fabric interconnect.
<b>Step 3</b>	UCSC(policy-mgr) /fabric # <b>scope tag-mgmt</b>	Scopes into tag management.
<b>Step 4</b>	UCSC(policy-mgr) /fabric/tag-mgmt # <b>show tag-type</b>	Displays all tag types.
<b>Step 5</b>	UCSC(policy-mgr) /fabric/tag-mgmt # <b>scope tag-type</b> ' <i>tag-type</i> '	Scopes into a specific tag type.
<b>Step 6</b>	UCSC(policy-mgr) /fabric/tag-mgmt/tag-type # <b>show tag-item</b>	Displays the values for the selected tag.

The following example shows how to view maintenance group tags:

```
UCSC# connect policy-mgr
UCSC(policy-mgr) # scope fabric
UCSC(policy-mgr) /fabric # scope tag-mgmt
UCSC(policy-mgr) /fabric/tag-mgmt # show tag-type
Tag Type:
  Name                               Color      System Defined Multiple Restricted
  -----
  Adapter Driver for HCR             049fd9     Yes           Yes       Yes
  Basic                               5bc0de     Yes           Yes       No
  Geographic                          5bc0de     No            Yes       No
  Maintenance Group                   049fd9     Yes           No        Yes
```

```

Operating System for HCR 049fd9      Yes      No      Yes
UCSC(policy-mgr) /fabric/tag-mgmt # scope tag-type 'Maintenance Group'
UCSC(policy-mgr) /fabric/tag-mgmt/tag-type # show tag-item
Tag Item:
Value
-----
tag1
tag2
tag3
tag4

```

## Catalog Version for Firmware Updates

You can select one catalog per domain infrastructure update scheduled job. Each catalog version only applies to one product family. Therefore, it is a best practice, when updating the catalog, to create a maintenance group which contains only those domains with identical product families. Then, Cisco UCS domains included in that maintenance group are updated with the capability catalog defined for that product family. If you include other product families in that maintenance group, their catalog version is not updated.

## Setting the Catalog Version

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCSC # <b>connect policy-mgr</b>	Enters policy manager mode.
<b>Step 2</b>	UCSC(policy-mgr) # <b>scope org</b>	Scopes into the organization.
<b>Step 3</b>	UCSC(policy-mgr) /org # <b>scope domain-infra-profile job-name</b>	Enters the infrastructure firmware policy mode.
<b>Step 4</b>	UCSC(policy-mgr) /org/domain-infra-profile # <b>create fw-catalog-pack-config default</b>	Creates the firmware upgrade package.
<b>Step 5</b>	UCSC(policy-mgr) /org/domain-infra-profile/fw-catalog-pack-config # <b>set catalogversion catalogversion</b>	Specifies the infrastructure policy version for the update.
<b>Step 6</b>	UCSC(policy-mgr) /org/domain-infra-profile/fw-catalog-pack-config # <b>set descr description</b>	(Optional) Specifies a description for this infrastructure firmware pack.
<b>Step 7</b>	UCSC(policy-mgr) /org/domain-infra-profile/fw-infra-pack-config* # <b>commit-buffer</b>	Commits the transaction to the system.

The following example shows how to set the catalog version to v3.1(1e)T:

```

UCSC# connect policy-mgr
UCSC(policy-mgr) # scope org
UCSC(policy-mgr) /org # scope domain-infra-profile batch1

```

```

UCSC(policy-mgr) /org/domain-infra-profile # create fw-catalog-pack-config default
UCSC(policy-mgr) /org/domain-infra-profile/fw-catalog-pack-config* # set catalogversion
3.1(1e)T
UCSC(policy-mgr) /org/domain-infra-profile/fw-catalog-pack-config* # set descr sanjose
UCSC(policy-mgr) /org/domain-infra-profile/fw-catalog-pack-config* # commit-buffer
UCSC(policy-mgr) /org/domain-infra-profile/fw-catalog-pack-config #

```

## Setting Policy Control to Global

The Infrastructure and Catalog firmware policy is set to local, by default, because it is so disruptive. Edit it and set it to global before scheduling a domain infrastructure firmware update. If the firmware policy is set to local, it does not affect any domain when run.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCSC # <b>connect resource-mgr</b>	Enters resource manager mode.
<b>Step 2</b>	UCSC (resource-mgr) # <b>scope system</b>	Enters system mode.
<b>Step 3</b>	UCSC(resource-mgr) /system # <b>show policy-control-ep</b>	Displays local domains registered to this Cisco UCS Central system.
<b>Step 4</b>	UCSC(resource-mgr) /system # scope policy-control-ep <i>IP address of registered domain</i>	Enters the policy resolution control for the registered domain.
<b>Step 5</b>	UCSC(resource-mgr) /system/policy-control-ep # <b>set infra-pack-ctrl source local   global</b>	Sets the Infrastructure and Catalog firmware policy resolution control to local or global.
<b>Step 6</b>	UCSC(resource-mgr) /system/policy-control-ep * <b>#commit-buffer</b>	Commits the transaction to the system.

The following example shows how to set the catalog version to v3.1(1e)T:

```

UCSC# connect resource-mgr
UCSC(resource-mgr) # scope system
UCSC(resource-mgr) /system # show policy-control-ep

policy controlep:
  hostname or ip address
  -----
  10.193.200.100

UCSC(resource-mgr) /system # scope policy-control-ep 10.193.200.100
UCSC(resource-mgr) /system/policy-control-ep # set infra-pack-ctrl source global
UCSC(resource-mgr) /system/policy-control-ep*# commit-buffer
UCSC(resource-mgr) /system/policy-control-ep #

```

# Scheduling Infrastructure Firmware Updates for Cisco UCS Domains

You can manage all firmware upgrades for Cisco UCS domains from Cisco UCS Central.

When you create the infrastructure firmware policy in Cisco UCS Central CLI, the system automatically creates a schedule for the policy. You can edit the automatic scheduled for **fw-infra** and **fi-reboot** to change the date and time.

## Before You Begin

You must create a domain infrastructure profile and a tag before you can schedule an update. See [Creating a Domain Infrastructure Profile and Assigning a Tag](#) for more information.

## Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCSC # <b>connect policy-mgr</b>	Enters policy manager mode.
<b>Step 2</b>	UCSC(policy-mgr) # <b>scope org</b>	Scopes into the organization.
<b>Step 3</b>	UCSC(policy-mgr) /org # <b>scope domain-infra-profile job-name</b>	Enters the infrastructure firmware policy job that you created previously.
<b>Step 4</b>	UCSC(policy-mgr) /org/domain-infra-profile* # <b>scope product-family ucs-classic ucs-mini ucs-classic-3gen</b>	Enters the specified product family mode in the maintenance group.
<b>Step 5</b>	UCSC(policy-mgr) /org/domain-infra-profile/product-family # <b>create fw-infra-pack-config job name</b>	Initiates the process to create infrastructure firmware policy.
<b>Step 6</b>	UCSC(policy-mgr) /org/domain-infra-profile/product-family/fw-infra-pack-config # <b>set infrabundleversion</b>	Specifies the infrastructure policy version for the update.
<b>Step 7</b>	UCSC(policy-mgr) /org/domain-infra-profile/product-family/fw-infra-pack-config # <b>set description</b>	(Optional) Specifies a description for this infrastructure firmware pack.
<b>Step 8</b>	UCSC(policy-mgr) /org/domain-infra-profile/product-family/fw-infra-pack-config* # <b>commit-buffer</b>	Commits the transaction to the system.

The following example shows how to schedule an infrastructure firmware update for a Cisco UCS Mini:

```
UCSC# connect policy-mgr
UCSC(policy-mgr) # scope org
UCSC(policy-mgr) /org # scope domain-infra-profile batch1
UCSC(policy-mgr) /org/domain-infra-profile # scope product-family ucs-mini
UCSC(policy-mgr) /org/domain-infra-profile/product-family # create fw-infra-pack-config default
```

```

UCSC(policy-mgr) /org/domain-infra-profile/product-family/fw-infra-pack-config* # set
infrabundleversion 3.1(1e)T
UCSC(policy-mgr) /org/domain-infra-profile/product-family/fw-infra-pack-config* # set descr
sanjose
UCSC(policy-mgr) /org/domain-infra-profile/product-family/fw-infra-pack-config* #
commit-buffer
UCSC(policy-mgr) /org/domain-infra-profile/product-family/fw-infra-pack-config #

```

## Viewing Infrastructure Firmware Packages

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCSC# <b>connect policy-mgr</b>	Enters policy manager mode.
<b>Step 2</b>	UCSC(policy-mgr)# <b>scope org</b>	Enters into the organization.
<b>Step 3</b>	UCSC(policy-mgr) /org # <b>scope domain-infra-profile job-name</b>	Enters the infrastructure firmware policy job that you created previously.
<b>Step 4</b>	UCSC(policy-mgr) /org/domain-infra-profile* # <b>scope product-family ucs-classic ucs-mini ucs-classic-3gen</b>	Enters the specified product family mode in the maintenance group.
<b>Step 5</b>	UCSC(policy-mgr) /org/domain-infra-profile/product-family # <b>scope fw-infra-pack-config</b>	Enters the infrastructure firmware package mode.
<b>Step 6</b>	UCSC(policy-mgr) /org/domain-group/product-family/fw-infra-pack-config # <b>show</b>	Displays the infrastructure firmware packages available in the system.

The following example shows how to view the available infrastructure packages:

```

UCSC# connect policy-mgr
UCSC(policy-mgr)# scope org
UCSC(policy-mgr) /org # scope domain-infra-profile job1
UCSC(policy-mgr) /org/domain-infra-profile # scope product-family ucs-classic
UCSC(policy-mgr) /org/domain-infra-profile/product-family # scope fw-infra-pack-config
UCSC(policy-mgr) /org/domain-infra-profile/product-family/fw-infra-pack-config # show
Infra Pack:
Name                Mode          Infra Bundle Version
-----
root/default        Staged       2.1(0.480)A
UCSC(policy-mgr) /domain-group/fw-infra-pack #

```

## Firmware Upgrade Schedules

When upgrading the firmware, you can schedule upgrades from Cisco UCS Central in the following ways:

- As a one time occurrence
- As a recurring occurrence that recurs at designated intervals

If you configure the schedules for user acknowledgment, the fabric interconnect does not reboot without explicit acknowledgment.

## Creating a One-Time Occurrence Schedule

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCSC# <b>connect policy-mgr</b>	Enters policy manager mode.
<b>Step 2</b>	UCSC(policy-mgr)# <b>scope org</b>	Scopes into the organization.
<b>Step 3</b>	UCSC(policy-mgr) /org # <b>scope domain-infra-profile job-name</b>	Enters the infrastructure firmware policy mode.
<b>Step 4</b>	UCSC(policy-mgr) /org/domain-infra-profile # <b>scope schedule job-name</b>	Enters the infrastructure firmware scheduling mode.
<b>Step 5</b>	UCSC(policy-mgr) /org/domain-infra-profile/schedule/ # <b>scope occurrence one-time   recurring</b>	Enters the scheduling occurrence mode.
<b>Step 6</b>	UCSC(policy-mgr) /org/domain-infra-profile/schedule/ # <b>scope occurrence one-time infra-fw</b>	Enters the scheduling mode for a one-time occurrence.
<b>Step 7</b>	UCSC(policy-mgr) /org/domain-infra-profile/schedule/one-time # <b>set date apr 7 2016 18 00 00</b>	Specifies the date and time for the one time occurrence.
<b>Step 8</b>	UCSC(policy-mgr) /org/domain-infra-profile/schedule/one-time* # <b>commit-buffer</b>	Commits the transaction to the system.

The following example shows how to schedule a one time occurrence firmware update:

```
UCSC# connect policy-mgr
UCSC(policy-mgr) # scope org
UCSC(policy-mgr) /org # scope domain-infra-profile job1
UCSC(policy-mgr) /org/domain-infra-profile # scope schedule infra-fw
UCSC(policy-mgr) /org/domain-infra-profile/schedule # scope occurrence
one-time recurring
UCSC(policy-mgr) /org/domain-infra-profile/schedule # scope occurrence one-time infra-fw
UCSC(policy-mgr) /org/domain-infra-profile/schedule/one-time # set date apr 7 2016 18 00
00
UCSC(policy-mgr) /org/domain-infra-profile/schedule/one-time* # commit-buffer
UCSC(policy-mgr) /org/domain-infra-profile/schedule/one-time #
```

## Viewing One Time Occurrence Schedule

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCSC# <b>connect policy-mgr</b>	Enters policy manager mode.
<b>Step 2</b>	UCSC(policy-mgr)# <b>scope org</b>	Scopes into the organization.
<b>Step 3</b>	UCSC(policy-mgr) /org # <b>scope domain-infra-profile job-name</b>	Enters the infrastructure firmware policy mode.
<b>Step 4</b>	UCSC(policy-mgr) /org/domain-infra-profile # <b>scope schedule schedule-name</b>	Enters the infrastructure firmware scheduling mode.
<b>Step 5</b>	UCSC(policy-mgr) /org/domain-infra-profile/schedule # <b>show detail</b>	Displays the one-time schedule.

The following example shows how to display the scheduled one time occurrence:

```
UCSC# connect policy-mgr
UCSC(policy-mgr)# scope org
UCSC(policy-mgr) /org # scope domain-infra-profile job1
UCSC(policy-mgr) /org/domain-infra-profile # scope schedule one-time
UCSC(policy-mgr) /org/domain-infra-profile/schedule # show detail
One-Time Occurrence:
Name: Friday
Start Date: 2012-11-17T16:00:00.000
Max Duration (dd:hh:mm:ss): None
Max Concur Tasks: Unlimited
Max Tasks: Unlimited
Min Interval (dd:hh:mm:ss): None
Executed Tasks: 0
UCSC(policy-mgr) /domain-group/schedule/one-time #
```

## Enabling User-Acknowledgment

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCSC# <b>connect policy-mgr</b>	Enters policy manager mode.
<b>Step 2</b>	UCSC(policy-mgr)# <b>scope org</b>	Enters into the organization.
<b>Step 3</b>	UCSC(policy-mgr) /org # <b>scope domain-infra-profile job-name</b>	Enters the infrastructure firmware policy mode.
<b>Step 4</b>	UCSC(policy-mgr) /org/domain-infra-profile # <b>create   scope scheduleschedule-name</b>	Enters the scheduling mode.



	Command or Action	Purpose
<b>Step 5</b>	UCSC(policy-mgr) /org/domain-infra-profile/schedule # <b>set admin-state user-ack</b>	Sets state to user-acknowledgment required before initiating upgrade, and before a fabric interconnect reboots.
<b>Step 6</b>	UCSC(policy-mgr) /org/domain-infra-profile/schedule* # <b>commit-buffer</b>	Commits the transaction to the system.

The following example shows how to schedule a one time occurrence firmware update in Cisco UCS Central CLI:

```
UCSC# connect policy-mgr
UCSC(policy-mgr) # scope org
UCSC(policy-mgr) /org # scope domain-infra-profile job1
UCSC(policy-mgr) /org/domain-infra-profile # scope schedule infra-fw
UCSC(policy-mgr) /org/domain-infra-profile/schedule # set admin-state user-ack
UCSC(policy-mgr) /org/domain-infra-profile/schedule/one-time* # commit-buffer
UCSC(policy-mgr) /org/domain-infra-profile/schedule/one-time* #
```

## Acknowledging a Pending Activity

This procedure describes the process to acknowledge the start of an infrastructure firmware update from the Cisco UCS Central CLI.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	UCSC# <b>connect policy-mgr</b>	Enters policy manager mode.
<b>Step 2</b>	UCSC(policy-mgr)# <b>scope org</b>	Enters into the organization.
<b>Step 3</b>	UCSC(policy-mgr) /org # <b>scope domain-infra-profile job-name</b>	Enters the infrastructure firmware policy mode.
<b>Step 4</b>	UCSC(policy-mgr) /org/domain-infra-profile # <b>scope scheduleschedule-name</b>	Enters the scheduling mode.
<b>Step 5</b>	UCSC(ops-mgr) /org/domain-infra-profile/schedule # <b>show token-request</b>	Displays the pending tokens in the system.
<b>Step 6</b>	UCSC(ops-mgr) /org/domain-infra-profile/schedule # <b>scope token-requestdomain-ID   token-name</b>	Finds the pending activity.
<b>Step 7</b>	UCSC(ops-mgr) /org/domain-infra-profile/schedule/token-request # <b>acknowledge token-request</b>	Acknowledges the specified pending activity.
<b>Step 8</b>	UCSC(ops-mgr) /org/domain-infra-profile/schedule/token-request * # <b>commit-buffer</b>	Commits the transaction to the system.

The following example shows how to acknowledge a pending activity:

```
UCSC# connect policy-mgr
UCSC(policy-mgr)# scope org
UCSC(policy-mgr) /org # scope domain-infra-profile job1
UCSC(policy-mgr) /org/domain-infra-profile # scope schedule infra-fw
UCSC(ops-mgr) /org/domain-infra-profile/schedule # show token-request
Keyword for user-ack:
  Domain ID Token Request Name Client IP Admin State Oper State
  -----
    1008 sys-fw-system-fw-infra 10.193.189.6
                                     Auto Scheduled Pending Ack
UCSC(ops-mgr) /org/domain-infra-profile/schedule # scope token-request 1008
sys-fw-system-fw-infra
UCSC(ops-mgr) /org/domain-infra-profile/schedule/token-request # acknowledge token-request

UCSC(ops-mgr) /org/domain-infra-profile/schedule/token-request* # commit-buffer
```