Service Profiles and Templates

This chapter includes the following sections:

Global Service Profiles

Global service profile centralizes the logical configuration deployed in across the data center. This centralization enables the maintenance of all service profiles in the Cisco UCS domains from one central location in Cisco UCS Central. When you use a global service profile, you can do the following across the data center:

- Pick a compute element for the service profile from any of the Cisco UCS domains.
- Migrate the service profile from one element to another.
- Select servers from the available global server pools from any of the Cisco UCS domains.
- Associate global resources such as ID pools and policies.
- Reference to any of the global policies in the Cisco UCS domain.

Creating Global Service Profiles

You can create a global service profile from Cisco UCS Central GUI or Cisco UCS Central CLI or as regular service profiles from Cisco UCS Manager and reference the global polices. When you create the global service profile from Cisco UCS Central, you can create ID pools, vNICs and vHBAs in Cisco UCS Central and reference to the ID.

Configuring Management IP Addresses for Global Service Profiles

Each server in a Cisco UCS domain must have one or more management IP addresses assigned to its Cisco Integrated Management Controller (CIMC) or to the service profile associated with the server. In Cisco UCS Central, the following management IP addresses can be configured to create a service profile:

- Zero or one outband IPv4 address, through which traffic traverses the fabric interconnect through the management port.

- Zero or one inband (IPv4 or IPv6) address, through which traffic traverses the fabric interconnect through the fabric uplink port.

You can configure either a pooled or a static management IP address through the Cisco UCS Central GUI or CLI. However, while creating a global service profile using the global service profile template, you can only configure a pooled management IP address. Static IP address is not supported for this release.

Guidelines and Cautions for Global Service Profile

Make sure to remember the following when you are creating global service profiles:

- When you create a global service profile in Cisco UCS Central, the system validates the following information:

  - Use od ID along with vNICs, vHBAs, iSCSI vNICs etc

  - vLAN and vSAN assignment

  - Association to the compute element based on the availability index

  - Server qualification criteria

    Any incompatibility in these information will be flagged. You can successfully create the global service profile only after resolving these issues.

- After any of the policy reference is resolved in the global service profile, if any of the remote policy is changed, that will result in reconfiguration of the global service profile.

- The VLANs and VSANs in Cisco UCS Central belong to domain groups. Make sure to create the VLANS or VSANs under a domain group. In case of VLAN also assign them to Orgs before a vNIC or vHBA from the global service profile can access the VLAN or VSAN.

- You can modify, disassociate or delete any of the global service profile only from Cisco UCS Central.

- You can rename a global service profile only from Cisco UCS Central. When you rename a service profile, Cisco UCS Central deletes the global service profile with old name and creates a new service profile with the new name in the inventory.

- If a server that is associated to the global service profile is removed from the Cisco UCS domain, when you re-acknowledge the server, it will be unassociated from the service profile.

- You cannot define or access domain specific policies, such as multi-cast policy and flow-control policy from Cisco UCS Central. But, you can reference to these policies from Cisco UCS Central by global service profile resources. When you define the global service profile, you can view the available domain specific policies and refer to them in the service profile by name. When the service profile is deployed, the Cisco UCS domain resolves to the policy and includes it in the service profile for that domain.

- You can localize a global service profile from the deployed Cisco UCS Manager. When you localize, the global service profile is deleted from Cisco UCS Central. But all the global policies still remain global. If you want to localize the global policies, you have to localize each policy separately.

Creating a Global Service Profile

Procedure

	Command or Action	**Purpose**
Step 1	UCSC# **connect resource-mgr**	Enters resource manager mode.
Step 2	UCSC(resource-mgr) # **scope org**	Enters organization mode for the specified organization. To enter the root organization mode, type / as the *org-name*.
Step 3	UCSC(resource-mgr)# /org # **create service-profile** *profile-name* **instance**	Creates the specified service profile and enters organization service profile mode.
		This name can be between 2 and 32 alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen), _ (underscore), : (colon), and . (period), and this name must be unique across all service profiles and service profile templates within the same organization.
Step 4	UCSC(resource-mgr) /org/service-profile # **set bios-policy** *policy-name*	Associates the specified BIOS policy with the service profile.
Step 5	UCSC(resource-mgr) /org/service-profile # **set boot-policy** *policy-name*	Associates the specified boot policy with the service profile.
Step 6	UCSC(resource-mgr) /org/service-profile # **set descr** *description*	(Optional) Provides a description for the service profile.
		Note If your description includes spaces, special characters, or punctuation, you must begin and end your description with quotation marks. The quotation marks will not appear in the description field of any **show** command output.
Step 7	UCSC(resource-mgr) /org/service-profile # **set dynamic-vnic-conn-policy** *policy-name*	Associates the specified dynamic vNIC connection policy with the service profile.
Step 8	UCSC(resource-mgr) /org/service-profile # **set extippoolname** *pool-name*	Associates the specified external IP pool with the service profile.
Step 9	UCSC(resource-mgr) /org/service-profile # **set extipstate** *pool-name*	Specifies how the external IP address will be assigned to the service profile.
		You can set the IP address policy using the following options:
		• None—The service profile is not assigned an IP address.

	Command or Action	Purpose
		• Pooled—The service profile is assigned an IP address from the IP pool.
		• Static—The service profile is assigned the configured IP address.
Step 10	UCSC(resource-mgr) /org/service-profile # **set host-fw-policy** *policy-name*	Associates the specified host firmware policy with the service profile.
Step 11	UCSC(resource-mgr) /org/service-profile # **set identity** {**dynamic-uuid** {*uuid* | **derived**} | **dynamic-wwnn** {*wwnn* | **derived**} | **uuid-pool** *pool-name* | **wwnn-pool** *pool-name*}	Specifies how the server acquires a UUID or WWNN. You can do one of the following: • Create a unique UUID in the form *nnnnnnnn-nnnn-nnnn-nnnnnnnnnnnn* . • Derive the UUID from the one burned into the hardware at manufacture. • Use a UUID pool. • Create a unique WWNN in the form *hh* **:** *hh* **:** *hh* **:** *hh* **:** *hh* **:** *hh* **:** *hh* **:** *hh* . • Derive the WWNN from one burned into the hardware at manufacture. • Use a WWNN pool.
Step 12	UCSC(resource-mgr) /org/service-profile # **set ipmi-access-profile** *profile-name*	Associates the specified IPMI access profile with the service profile.
Step 13	UCSC(resource-mgr) /org/service-profile # **set iscsi-identity** {**initiator-name** *initiator-name* | **initiator-pool-name** *iqn-pool-name*	Specifies the name of the iSCSI initiator or the name of an IQN pool from which the iSCSI initiator name will be provided. The iSCSI initiator name can be up to 223 characters.
Step 14	UCSC(resource-mgr) /org/service-profile # **set lan-connectivity-policy-name** *policy-name*	Associates the specified LAN connectivity policy with the service profile. **Note** You cannot have a LAN connectivity policy and locally created vNICs in the same service profile. When you add a LAN connectivity policy to a service profile, any existing vNIC configuration is erased.
Step 15	UCSC(resource-mgr) /org/service-profile # **set local-disk-policy** *policy-name*	Associates the specified local disk policy with the service profile.
Step 16	UCSC(resource-mgr) /org/service-profile # **set maintpolicyname** *policy-name*	Associates the specified maintenance policy with the service profile.

	Command or Action	**Purpose**
Step 17	UCSC(resource-mgr) /org/service-profile # **set power-control-policy** *policy-name*	Associates the specified power control policy with the service profile.
Step 18	UCSC(resource-mgr) /org/service-profile # **set san-connectivity-policy-name** *policy-name*	Associates the specified SAN connectivity policy with the service profile. **Note** You cannot have a SAN connectivity policy and locally created vHBAs in the same service profile. When you add a SAN connectivity policy to a service profile, any existing vHBA configuration is erased.
Step 19	UCSC(resource-mgr) /org/service-profile # **set scrub-policy** *policy-name*	Associates the specified scrub policy with the service profile.
Step 20	UCSC(resource-mgr) /org/service-profile # **set sol-policy** *policy-name*	Associates the specified serial over LAN policy with the service profile.
Step 21	UCSC(resource-mgr) /org/service-profile # **set stats-policy** *policy-name*	Associates the specified statistics policy with the service profile.
Step 22	UCSC(resource-mgr) /org/service-profile # **set user-label** *label-name*	Specifies the user label associated with the service profile.
Step 23	UCSC(resource-mgr) /org/service-profile # **set vcon** {**1** | **2** | **3** | **4**} **select** {**all** | **assigned-only** | **exclude-dynamic** | **exclude-unassigned**}	Specifies the selection preference for the specified vCon.
Step 24	UCSC(resource-mgr) /org/service-profile # **set vcon-policy** *policy-name*	Associates the specified vNIC/vHBA placement policy with the service profile. **Note** You can either assign a vNIC/vHBA placement policy to the service profile, or set vCon selection preferences for the service profile, but you do not need to do both.
Step 25	UCSC(resource-mgr) /org/service-profile # **commit-buffer**	Commits the transaction to the system configuration.

The following example shows how to create a service profile and commit the transaction:

```
UCSC# connect resource-mgr
UCSC(resource-mgr)# scope org /
UCSC(resource-mgr) /org* # create service-profile GSP2 instance
UCSC(resource-mgr) /org/service-profile* # set bios-policy biospol1
UCSC(resource-mgr) /org/service-profile* # set boot-policy bootpol32
UCSC(resource-mgr) /org/service-profile* # set  descr "This is a global service profile
example."
UCSC(resource-mgr) /org/service-profile* # set dynamic-vnic-conn-policy mydynvnicconnpolicy
UCSC(resource-mgr) /org/service-profile* # set extippoolname myippool
UCSC(resource-mgr) /org/service-profile* # set extipstate pooled
UCSC(resource-mgr) /org/service-profile* # set host-fw-policy ipmi-user987
UCSC(resource-mgr) /org/service-profile* # set identity dynamic-uuid derived
UCSC(resource-mgr) /org/service-profile* # set ipmi-access-profile ipmiProf16
UCSC(resource-mgr) /org/service-profile* # set local-disk-policy localdiskpol33
```

```
UCSC(resource-mgr) /org/service-profile* # set maintpolicyname maintpol4
UCSC(resource-mgr) /org/service-profile* # set power-control-policy powcontrpol13
UCSC(resource-mgr) /org/service-profile* # set scrub-policy scrubpol55
UCSC(resource-mgr) /org/service-profile* # set sol-policy solpol2
UCSC(resource-mgr) /org/service-profile* # set stats-policy statspol4
UCSC(resource-mgr) /org/service-profile* # set user-label mylabel
UCSC(resource-mgr) /org/service-profile* # set vcon-policy myvconnpolicy
UCSC(resource-mgr) /org/service-profile* # commit-buffer
UCSC(resource-mgr) /org/service-profile #
```

What to Do Next

Deploy the Global Service profile in UCS Domains.

Creating a Global Service Profile Instance from a Service Profile Template

Before You Begin

Verify that there is a service profile template from which to create a service profile instance.

Procedure

	Command or Action	Purpose
Step 1	UCSC# **connect resource-mgr**	Enters resource manager mode.
Step 2	UCSC(resource-mgr) # **scope org**	Enters organization mode for the specified organization. To enter the root organization mode, type / as the *org-name*.
Step 3	UCSC(resource-mgr)# /org # **create service-profile** *profile-name* **instance**	Creates the specified service profile and enters organization service profile mode. This name can be between 2 and 32 alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen), _ (underscore), : (colon), and . (period), and this name must be unique across all service profiles and service profile templates within the same organization.
Step 4	UCSC(resource-mgr) /org/service-profile # **set src-templ-name** *profile-name*	Specifies the source service profile template to apply to the service profile instance. All configuration settings from the service profile template will be applied to the service profile instance.
Step 5	UCSC(resource-mgr) /org/service-profile # **commit-buffer**	Commits the transaction to the system configuration.

The following example shows how to create a service profile instance, apply the service profile template named ServTemp2, and commit the transaction:

```
UCSC# connect resource-mgr
UCSC(resource-mgr)# scope org /
UCSC(resource-mgr) /org* # create service-profile GSP2 instance
UCSC(resource-mgr) /org/service-profile* # set src-templ-name ServTemp2
```

```
UCSC(resource-mgr) /org/service-profile* # commit-buffer
UCSC(resource-mgr) /org/service-profile #
```

What to Do Next

Associate the service profile to a server, rack server, or server pool.

Configuring a vNIC for a Global Service Profile

Procedure

	Command or Action	**Purpose**
Step 1	UCSC# **connect resource-mgr**	Enters resource manager mode.
Step 2	UCSC(resource-mgr) # **scope org**	Enters organization mode for the specified organization. To enter the root organization mode, type / as the *org-name*.
Step 3	UCSC(resource-mgr) /org # **scope service-profile** *profile-name*	Enters organization service profile mode for the specified service profile.
Step 4	UCSC(resource-mgr) /org/service-profile # **create vnic** *vnic-name* [**eth-if** *eth-if-name*] [**fabric** {**a** | **b**}]	Creates a vNIC for the specified service profile and enters organization service profile vNIC mode.
Step 5	UCSC(resource-mgr) /org/service-profile/vnic # **set adapter-policy** *policy-name*	Specifies the adapter policy to use for the vNIC.
Step 6	UCSC(resource-mgr) /org/service-profile/vnic # **set fabric** {**a** | **a-b** | **b** | **b-a**}	Specifies the fabric to use for the vNIC. If you did not specify the fabric when creating the vNIC template in Step 3, you have the option to specify it with this command. If you want this vNIC to be able to access the second fabric interconnect if the default one is unavailable, choose **a-b** (A is the primary) or **b-a** (B is the primary) .

	Command or Action	Purpose
		Note Do not enable fabric failover for the vNIC under the following circumstances:
		• If the Cisco UCS domain is running in Ethernet Switch Mode. vNIC fabric failover is not supported in that mode. If all Ethernet uplinks on one fabric interconnect fail, the vNICs do not fail over to the other.
		• If you plan to associate this vNIC with a server that has an adapter which does not support fabric failover, such as the Cisco UCS 82598KR-CI 10-Gigabit Ethernet Adapter. If you do so, Cisco UCS Central generates a configuration fault when you associate the service profile with the server.
Step 7	UCSC(resource-mgr) /org/service-profile/vnic # **set identity** {**dynamic-mac** {*mac-addr* | **derived**} | **mac-pool** *mac-pool-name*}	Specifies the identity (MAC address) for the vNIC. You can set the identity using one of the following options: • Create a unique MAC address in the form *nn* **:** *nn* **:** *nn* **:** *nn* **:** *nn* **:** *nn* . • Derive the MAC address from one burned into the hardware at manufacture. • Assign a MAC address from a MAC pool.
Step 8	UCSC(resource-mgr) /org/service-profile/vnic # **set mtu** *size-num*	The maximum transmission unit, or packet size, that this vNIC accepts. Enter an integer between 1500 and 9216. **Note** If the vNIC has an associated QoS policy, the MTU specified here must be equal to or less than the MTU specified in the associated QoS system class. If this MTU value exceeds the MTU value in the QoS system class, packets might get dropped during data transmission.
Step 9	UCSC(resource-mgr) /org/service-profile/vnic # **set nw-control-policy** *policy-name*	The network control policy the vNIC should use.
Step 10	UCSC(resource-mgr) /org/service-profile/vnic # **set order** {*order-num* | **unspecified**}	Specifies the relative order for the vNIC.
Step 11	UCSC(resource-mgr) /org/service-profile/vnic # **set pin-group** *group-name*	The LAN pin group the vNIC should use.

	Command or Action	Purpose
Step 12	UCSC(resource-mgr) /org/service-profile/vnic # **set qos-policy** *policy-name*	The quality of service policy the vNIC should use.
Step 13	UCSC(resource-mgr) /org/service-profile/vnic # **set stats-policy** *policy-name*	The statistics collection policy the vNIC should use.
Step 14	UCSC(resource-mgr) /org/service-profile/vnic # **set template-name** *policy-name*	Specifies the dynamic vNIC connectivity policy to use for the vNIC.
Step 15	UCSC(resource-mgr) /org/service-profile/vnic # **set vcon** {**1** | **2** | **3** | **4** | **any**}	Assigns the vNIC to the specified vCon. Use the **any** keyword to have Cisco UCS Central automatically assign the vNIC.
Step 16	UCSC(resource-mgr) /org/service-profile/vnic # **commit-buffer**	Commits the transaction to the system configuration.

The following example shows how to configure a vNIC for a service profile and commits the transaction:

```
UCSC# connect resource-mgr
UCSC(resource-mgr)# scope org /
UCSC(resource-mgr) /org* # scope service-profile ServProf2
UCSC(resource-mgr) /org/service-profile* # create vnic vnic3 fabric a
UCSC(resource-mgr) /org/service-profile/vnic* # set adapter-policy AdaptPol2
UCSC(resource-mgr) /org/service-profile/vnic* # set fabric a-b
UCSC(resource-mgr) /org/service-profile/vnic* # set identity mac-pool MacPool3
UCSC(resource-mgr) /org/service-profile/vnic* # set mtu 8900
UCSC(resource-mgr) /org/service-profile/vnic* # set nw-control-policy ncp5
UCSC(resource-mgr) /org/service-profile/vnic* # set order 0
UCSC(resource-mgr) /org/service-profile/vnic* # set pin-group EthPinGroup12
UCSC(resource-mgr) /org/service-profile/vnic* # set qos-policy QosPol5
UCSC(resource-mgr) /org/service-profile/vnic* # set stats-policy StatsPol2
UCSC(resource-mgr) /org/service-profile/vnic* # set template-name VnicConnPol3
UCSC(resource-mgr) /org/service-profile/vnic* # set vcon any
UCSC(resource-mgr) /org/service-profile/vnic* # commit-buffer
UCSC(resource-mgr) /org/service-profile/vnic #
```

Configuring a vHBA for a Global Service Profile

Procedure

	Command or Action	Purpose
Step 1	UCSC# **connect resource-mgr**	Enters resource manager mode.
Step 2	UCSC(resource-mgr) # **scope org**	Enters organization mode for the specified organization. To enter the root organization mode, type / as the *org-name*.

	Command or Action	Purpose
Step 3	UCSC(resource-mgr) /org # **scope service-profile** *profile-name*	Enters organization service profile mode for the specified service profile.
Step 4	UCSC(resource-mgr) /org/service-profile # **create vhba** *vhba-name* [**fc-if** *fc-if-name*] [**fabric** {**a**	**b**}]	Creates a vHBA for the specified service profile and enters organization service profile vHBA mode.
Step 5	UCSC(resource-mgr) /org/service-profile/vhba # **set adapter-policy** *policy-name*	Specifies the adapter policy to use for the vHBA.
Step 6	UCSC(resource-mgr) /org/service-profile/vhba # **set fabric** {**a**	**b**}	Specifies the fabric to use for the vHBA. If you did not specify the fabric when creating the vHBA template in Step 4, you have the option to specify it with this command.
Step 7	UCSC(resource-mgr) /org/service-profile/vhba # **set fc-if** *fc-if-name*	Specifies the fibre channel interface to use for the vHBA. If you did not specify the fibre channel interface when creating the vHBA template in Step 4, you have the option to specify it with this command.
Step 8	UCSC(resource-mgr) /org/service-profile/vhba # **set identity** {**dynamic-wwpn** {*wwpn*	**derived**}	**wwpn-pool** *wwn-pool-name*}	Specifies the WWPN for the vHBA. You can set the storage identity using one of the following options: • Create a unique WWPN in the form *hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*. You can specify a WWPN in the range from 20:00:00:00:00:00:00:00 to 20:FF:FF:FF:FF:FF:FF:FF or from 50:00:00:00:00:00:00:00 to 5F:FF:FF:FF:FF:FF:FF:FF. If you want the WWPN to be compatible with Cisco MDS Fibre Channel switches, use the WWPN template **20:00:00:25:B5:XX:XX:XX**. • Derive the WWPN from one burned into the hardware at manufacture. • Assign a WWPN from a WWN pool.
Step 9	UCSC(resource-mgr) /org/service-profile/vhba # **set max-field-size** *size-num*	Specifies the maximum size of the Fibre Channel frame payload (in bytes) that the vHBA supports.
Step 10	UCSC(resource-mgr) /org/service-profile/vhba # **set pers-bind** {**disabled**	**enabled**}	Disables or enables persistent binding to Fibre Channel targets.

	Command or Action	Purpose
Step 11	UCSC(resource-mgr) /org/service-profile/vhba # **set pin-group** *group-name*	Specifies the SAN pin group to use for the vHBA.
Step 12	UCSC(resource-mgr) /org/service-profile/vhba # **set qos-policy** *policy-name*	Specifies the QoS policy to use for the vHBA.
Step 13	UCSC(resource-mgr) /org/service-profile/vhba # **set stats-policy** *policy-name*	Specifies the statistics threshold policy to use for the vHBA.
Step 14	UCSC(resource-mgr) /org/service-profile/vhba # **set template-name** *policy-name*	Specifies the vHBA template to use for the vHBA.
Step 15	UCSC(resource-mgr) /org/service-profile/vhba # **set vcon {1	2	3	4	any}**	Assigns the vHBA to the specified vCon. Use the **any** keyword to have Cisco UCS Central automatically assign the vHBA.
Step 16	UCSC(resource-mgr) /org/service-profile/vhba # **commit-buffer**	Commits the transaction to the system configuration.

The following example configures a vHBA for a service profile and commits the transaction:

```
UCSC# connect resource-mgr
UCSC(resource-mgr)# scope org /
UCSC(resource-mgr) /org* # scope service-profile ServProf2
UCSC(resource-mgr) /org/service-profile* # create vhba vhba3 fabric a
UCSC(resource-mgr) /org/service-profile/vhba* # set adapter-policy AdaptPol2
UCSC(resource-mgr) /org/service-profile/vhba* # set identity wwpn-pool wwpnPool3
UCSC(resource-mgr) /org/service-profile/vhba* # set max-field-size 8900
UCSC(resource-mgr) /org/service-profile/vhba* # set pin-group EthPinGroup12
UCSC(resource-mgr) /org/service-profile/vhba* # set qos-policy QosPol5
UCSC(resource-mgr) /org/service-profile/vhba* # set stats-policy StatsPol2
UCSC(resource-mgr) /org/service-profile/vhba* # set template-name vHBATemp3
UCSC(resource-mgr) /org/service-profile/vhba* # set vcon any
UCSC(resource-mgr) /org/service-profile/vhba* # commit-buffer
UCSC(resource-mgr) /org/service-profile/vhba #
```

Setting up an Inband Pooled Management IP Address

You can set up an inband pooled IPv4 or an IPv6 management address.

Procedure

	Command or Action	Purpose
Step 1	UCSC# **scope system**	Enters System mode.

	Command or Action	**Purpose**
Step 2	UCSC/System#**scope org**org-name	Enters organization mode for the specific organization.
Step 3	UCSC/org#**scope service-profile**service-profile-name	Enters the service profile mode.
Step 4	UCSC/org/service-profile#**create mgmt-iface**inband	Creates the inband management interface and enters the interface mode.
Step 5	UCSC/org/service-profile/mgmt-iface#**create mgmt-vlan**	Creates a management VLAN and enters the VLAN configuration mode.
Step 6	UCSC/org/service-profile/mgmt-iface/mgmt-vlan#**create ext-pooled-ip**	Creates an external IP pool and enters the IP pool configuration mode.
Step 7	UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-pooled-ip#**set name**ipv4-address-pool-name	Sets the name of the inband IPv4 pool.
Step 8	UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-pooled-ip#**exit**	Exits the IPv4 pool configuration mode.
Step 9	UCSC/org/service-profile/mgmt-iface/mgmt-vlan#**create ext-pooled-ip6**	Creates an external IPv6 pool and enters the IPv6 pool configuration mode.
Step 10	UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-pooled-ip6#**set name**ipv6-address-pool-name	Sets the name of the inband IPv6 pool.
Step 11	UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-pooled-ip6#**commit-buffer**	Commits the transaction in the system configuration.

The following example shows how to configure an pooled inband management IP interface:

```
UCSC#scope system
UCSC/system#scope org org1
UCSC/org# scope service-profile sp2
UCSC/org/service-profile# create mgmt-iface inband1
UCSC/org/service-profile/mgmt-iface#create mgmt-vlan
UCSC/org/service-profile/mgmt-iface/mgmt-vlan# create ext-pooled-ip
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-pooled-ip# set name <ipv4-address-pool-name>
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-pooled-ip# exit
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-pooled-ip# create ext-pooled-ip6
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-pooled-ip6# set name
<ipv6-address-pool-name>
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-pooled-ip6# commit-buffer
```

What to Do Next

Associate the inband management IP interface service profile to a server.

Setting up an Inband Static Management IP Address

You can set up an inband static IPv4 or an IPv6 management address.

Procedure

	Command or Action	Purpose
Step 1	UCSC# **scope system**	Enters System mode.
Step 2	UCSC/System#**scope org**_org-name_	Enters organization mode for the specific organization.
Step 3	UCSC/org#**scope service-profile**_service-profile-name_	Enters the service profile mode.
Step 4	UCSC/org/service-profile#**create mgmt-iface**_inband_	Creates the inband management interface and enters the interface mode.
Step 5	UCSC/org/service-profile/mgmt-iface#**create mgmt-vlan**	Creates a management VLAN and enters the VLAN configuration mode.
Step 6	UCSC/org/service-profile/mgmt-iface/mgmt-vlan#**create ext-static-ip**	Creates an external static IP address and enters the IP pool configuration mode.

	Command or Action	Purpose
Step 7	UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip#**set address***ipv4-address*	Sets up the inband static IPv4 address.
Step 8	UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip#**set default-gw***gateway-ip*	Sets up the default gateway IP address.
Step 9	UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip#**set prefix***prefix*	Sets up the network prefix.
Step 10	UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip#**exit**	Exits the IPv4 static configuration mode.
Step 11	UCSC/org/service-profile/mgmt-iface/mgmt-vlan#**create ext-static-ip6**	Creates an external static IPv6 address and enters the IPv6 configuration mode.
Step 12	UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip6#**set address***ipv6-address*	Sets the name of the inband IPv6 static address.
Step 13	UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip6#**set default-gw***gateway-ipv6*	Sets up the default gateway IPv6 address.
Step 14	UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip6#**set prefix***prefix*	Sets up the network prefix.
Step 15	UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip6#**commit-buffer**	Commits the transaction in the system configuration.

The following example shows how to configure an inband static management IP interface:

```
UCSC#scope system
UCSC/system#scope org org1
UCSC/org# scope service-profile sp2
UCSC/org/service-profile# create mgmt-iface inband1
UCSC/org/service-profile/mgmt-iface#create mgmt-vlan
UCSC/org/service-profile/mgmt-iface/mgmt-vlan# create ext-static-ip
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip# set addr <ipv4-address>
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip# set default-gw <gateway-ip>
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip# set prefix <prefix>
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-pooled-ip# exit
UCSC/org/service-profile/mgmt-iface/mgmt-vlan# create ext-static-ip6
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip6# set addr <ipv6-address>
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip6# set default-gw <gateway-ipv6>
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-static-ip6# set prefix <prefix>
UCSC/org/service-profile/mgmt-iface/mgmt-vlan/ext-pooled-ip6# commit-buffer
```

What to Do Next

Associate the inband management IP interface service profile to a server.

Setting up an Outband Pooled Management IP Address

You can set up an outband pooled management IPv4 address.

Procedure

	Command or Action	**Purpose**
Step 1	UCSC# **scope system**	Enters System mode.
Step 2	UCSC/System#**scope org**org-name	Enters organization mode for the specific organization.
Step 3	UCSC/org#**scope service-profile**service-profile-name	Enters the service profile mode.
Step 4	UCSC/org/service-profile#**set ext-mgmt-ip-state pooled**	Sets up the external management IP pool.
Step 5	UCSC/org/service-profile#**set ext-mgmt-ip-pool-name**pool-name	Sets the name of the external management IP pool.
Step 6	UCSC/org/service-profile#**commit-buffer**	Commits the transaction in the system configuration.

The following example shows how to set up an outband pooled management IP address:
```
UCSC#scope system
UCSC/system#scope org org1
UCSC/org# scope service-profile sp1
UCSC/org/service-profile# set ext-mgmt-ip-state pooled
UCSC/org/service-profile#set ext-mgmt-ip-pool-name ipool1
UCSC/org/service-profile# commit-buffer
```

Setting up an Outband Static Management IP Address

You can set up a static outband management IP address.

Procedure

	Command or Action	**Purpose**
Step 1	UCSC# **scope system**	Enters System mode.
Step 2	UCSC/System#**scope org**org-name	Enters organization mode for the specific organization.
Step 3	UCSC/org#**scope service-profile**service-profile-name	Enters the service profile mode.
Step 4	UCSC/org/service-profile#**set ext-mgmt-ip-state static**	Sets up the state of the external management IP.
Step 5	UCSC/org/service-profile#**create ext-static-ip**	Creates a static external IP.

	Command or Action	Purpose
Step 6	UCSC/org/service-profile/ext-static-ip#**set addr***ip-address*	Sets the IP address.
Step 7	UCSC/org/service-profile/ext-static-ip#**set default-gw***gateway ip-address*	Sets the default gateway IP address.
Step 8	UCSC/org/service-profile/ext-static-ip#**commit-buffer**	Commits the transaction in the system configuration.

The following example shows how to set up an outband static management IP address:

```
UCSC#scope system
UCSC/system#scope org org1
UCSC/org# scope service-profile sp1
UCSC/org/service-profile# set ext-mgmt-ip-state static
UCSC/org/service-profile# create ext-static-ip
UCSC/org/service-profile/ext-static-ip#set addr <ip-address>
UCSC/org/service-profile/ext-static-ip#set default-gw <gateway ip-address>
UCSC/org/service-profile/ext-static-ip# commit-buffer
```

Deleting a Global Service Profile

Procedure

	Command or Action	Purpose
Step 1	UCSC# **connect resource-mgr**	Enters resource manager mode.
Step 2	UCSC(resource-mgr) # **scope org**	Enters organization mode for the specified organization. To enter the root organization mode, type / as the *org-name*.
Step 3	UCSC(resource-mgr)# /org # **show service-profile**	Displays the existing service profiles and service profile templates.
Step 4	UCSC(resource-mgr)# /org # **delete service-profile** *profile-name*	Deletes the specified service profile.
Step 5	UCSC(resource-mgr) /org # **commit-buffer**	Commits the transaction to the system configuration.

The following example shows how to delete a service profile and commit the transaction:

```
UCSC# connect resource-mgr
UCSC(resource-mgr)# scope org /
UCSC(resource-mgr) /org # show service-profile
Service Profile:
    Service Profile Name Type              System Id  Server    Assignment Association
    -------------------- ----------------- ---------- --------- ---------- -----------
    GSP_temp             Initial Template                       Unassigned Unassociated
    GSP2                 Instance                               Unassigned Unassociated
    test-upd_temp        Updating Template                      Unassigned Unassociated
    test2                Instance                               Unassigned Unassociated
```

```
UCSC(resource-mgr) /org* # delete service-profile GSP2
UCSC(resource-mgr) /org* # commit-buffer
UCSC(resource-mgr) /org #
```

Global Service Profile Template

Global service profile templates enable to quickly create several service profiles with the same basic parameters, such as the number of vNICs and vHBAs, and with identity information drawn from the same pools. The service profile template in Cisco UCS Central is similar to the service profile templates in Cisco UCS Manager.

Creating a Global Service Profile Template

Procedure

	Command or Action	**Purpose**
Step 1	UCSC# **connect resource-mgr**	Enters resource manager mode.
Step 2	UCSC(resource-mgr) # **scope org**	Enters organization mode for the specified organization. To enter the root organization mode, type / as the *org-name*.
Step 3	UCSC(resource-mgr)# /org # **create service-profile** *profile-name* {**initial-template** | **updating-template**}	Creates the specified service profile template and enters organization service profile mode. This name can be between 2 and 32 alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen), _ (underscore), : (colon), and . (period), and this name must be unique across all service profiles and service profile templates within the same organization. You can create service profile templates using the following options: • initial-template—Service profiles created from this template will not update if this template is updated. • updating-template—Service profiles created from this template will automatically update if this template is updated.
Step 4	UCSC(resource-mgr) /org/service-profile # **set bios-policy** *policy-name*	Associates the specified BIOS policy with the service profile template.
Step 5	UCSC(resource-mgr) /org/service-profile # **set boot-policy** *policy-name*	Associates the specified boot policy with the service profile template.

	Command or Action	Purpose
Step 6	UCSC(resource-mgr) /org/service-profile # **set descr** *description*	(Optional) Provides a description for the service profile template. **Note** If your description includes spaces, special characters, or punctuation, you must begin and end your description with quotation marks. The quotation marks will not appear in the description field of any **show** command output.
Step 7	UCSC(resource-mgr) /org/service-profile # **set dynamic-vnic-conn-policy** *policy-name*	Associates the specified dynamic vNIC connection policy with the service profile template.
Step 8	UCSC(resource-mgr) /org/service-profile # **set extippoolname** *pool-name*	Associates the specified external IP pool with the service profile template.
Step 9	UCSC(resource-mgr) /org/service-profile # **set extipstate** *pool-name*	Specifies how the external IP address will be assigned to the service profile template. You can set the IP address policy using the following options: • None—The service profile is not assigned an IP address. • Pooled—The service profile is assigned an IP address from the IP pool. • Static—The service profile is assigned the configured IP address.
Step 10	UCSC(resource-mgr) /org/service-profile # **set host-fw-policy** *policy-name*	Associates the specified host firmware policy with the service profile template.
Step 11	UCSC(resource-mgr) /org/service-profile # **set identity** {**dynamic-uuid** {*uuid* | **derived**} | **dynamic-wwnn** {*wwnn* | **derived**} | **uuid-pool** *pool-name* | **wwnn-pool** *pool-name*}	Specifies how the server acquires a UUID or WWNN. You can do one of the following: • Create a unique UUID in the form *nnnnnnnn-nnnn-nnnn-nnnnnnnnnnnn* . • Derive the UUID from the one burned into the hardware at manufacture. • Use a UUID pool. • Create a unique WWNN in the form *hh* **:** *hh* **:** *hh* **:** *hh* **:** *hh* **:** *hh* **:** *hh* **:** *hh* . • Derive the WWNN from one burned into the hardware at manufacture. • Use a WWNN pool.

	Command or Action	**Purpose**
Step 12	UCSC(resource-mgr) /org/service-profile # **set ipmi-access-profile** *profile-name*	Associates the specified IPMI access profile with the service profile template.
Step 13	UCSC(resource-mgr) /org/service-profile # **set iscsi-identity** {**initiator-name** *initiator-name* | **initiator-pool-name** *iqn-pool-name*	Specifies the name of the iSCSI initiator or the name of an IQN pool from which the iSCSI initiator name will be provided. The iSCSI initiator name can be up to 223 characters.
Step 14	UCSC(resource-mgr) /org/service-profile # **set lan-connectivity-policy-name** *policy-name*	Associates the specified LAN connectivity policy with the service profile template. **Note** You cannot have a LAN connectivity policy and locally created vNICs in the same service profile. When you add a LAN connectivity policy to a service profile, any existing vNIC configuration is erased.
Step 15	UCSC(resource-mgr) /org/service-profile # **set local-disk-policy** *policy-name*	Associates the specified local disk policy with the service profile template.
Step 16	UCSC(resource-mgr) /org/service-profile # **set maintpolicyname** *policy-name*	Associates the specified maintenance policy with the service profile template.
Step 17	UCSC(resource-mgr) /org/service-profile # **set power-control-policy** *policy-name*	Associates the specified power control policy with the service profile template.
Step 18	UCSC(resource-mgr) /org/service-profile # **set san-connectivity-policy-name** *policy-name*	Associates the specified SAN connectivity policy with the service profile template. **Note** You cannot have a SAN connectivity policy and locally created vHBAs in the same service profile. When you add a SAN connectivity policy to a service profile, any existing vHBA configuration is erased.
Step 19	UCSC(resource-mgr) /org/service-profile # **set scrub-policy** *policy-name*	Associates the specified scrub policy with the service profile template.
Step 20	UCSC(resource-mgr) /org/service-profile # **set sol-policy** *policy-name*	Associates the specified serial over LAN policy with the service profile template.
Step 21	UCSC(resource-mgr) /org/service-profile # **set stats-policy** *policy-name*	Associates the specified statistics policy with the service profile template.
Step 22	UCSC(resource-mgr) /org/service-profile # **set user-label** *label-name*	Specifies the user label associated with the service profile template.

	Command or Action	**Purpose**
Step 23	UCSC(resource-mgr) /org/service-profile # **set vcon** {**1** | **2** | **3** | **4**} **select** {**all** | **assigned-only** | **exclude-dynamic** | **exclude-unassigned**}	Specifies the selection preference for the specified vCon.
Step 24	UCSC(resource-mgr) /org/service-profile # **set vcon-policy** *policy-name*	Associates the specified vNIC/vHBA placement policy with the service profile template. **Note** You can either assign a vNIC/vHBA placement policy to the service profile, or set vCon selection preferences for the service profile, but you do not need to do both.
Step 25	UCSC(resource-mgr) /org/service-profile # **commit-buffer**	Commits the transaction to the system configuration.

The following example shows how to create a service profile template and commit the transaction:

```
UCSC# connect resource-mgr
UCSC(resource-mgr)# scope org /
UCSC(resource-mgr) /org* # create service-profile GSP_temp2 initial-template
UCSC(resource-mgr) /org/service-profile* # set bios-policy biospol1
UCSC(resource-mgr) /org/service-profile* # set boot-policy bootpol32
UCSC(resource-mgr) /org/service-profile* # set  descr "This is a global service profile
template example."
UCSC(resource-mgr) /org/service-profile* # set dynamic-vnic-conn-policy mydynvnicconnpolicy
UCSC(resource-mgr) /org/service-profile* # set extippoolname myippool
UCSC(resource-mgr) /org/service-profile* # set extipstate pooled
UCSC(resource-mgr) /org/service-profile* # set host-fw-policy ipmi-user987
UCSC(resource-mgr) /org/service-profile* # set identity dynamic-uuid derived
UCSC(resource-mgr) /org/service-profile* # set ipmi-access-profile ipmiProf16
UCSC(resource-mgr) /org/service-profile* # set local-disk-policy localdiskpol33
UCSC(resource-mgr) /org/service-profile* # set maintpolicyname maintpol4
UCSC(resource-mgr) /org/service-profile* # set power-control-policy powcontrpol13
UCSC(resource-mgr) /org/service-profile* # set scrub-policy scrubpol55
UCSC(resource-mgr) /org/service-profile* # set sol-policy solpol2
UCSC(resource-mgr) /org/service-profile* # set stats-policy statspol4
UCSC(resource-mgr) /org/service-profile* # set user-label mylabel
UCSC(resource-mgr) /org/service-profile* # set vcon-policy myvconnpolicy
UCSC(resource-mgr) /org/service-profile* # commit-buffer
UCSC(resource-mgr) /org/service-profile #
```

Global Service Profile Deployment

When you deploy a global service profile from Cisco UCS Central, the service profile definition is sent to the Cisco UCS domain. Then the Cisco UCS domain identifies the server and deploys the service profile to the server. The service profile definition that is sent to the Cisco UCS domain includes the following information :

- Service profile with reference policy names

- vNICs and vHBAs along with their vLAN bindings

- VCON assignment information for placement of VIFs in to appropriate VCON

• The global VLAN and VSAN definition referred to by a vNIC or vHVA in this service profile

You can deploy the global service profile to any of the compute element in either one of the following two ways:

• Direct assignment: Assign the global service profile to one of the available server in any of the registered Cisco UCS domain. You can also pre-provision a non-existent server.

• Server pool assignment: Assign the global service profile to a server pool. The global service profile will pick one of the available server from the pool for association.

• When the Cisco UCS domain receives the global service profile, the Cisco UCS Domain does the following:

  ◦ Configures the global service profile at the local level

  ◦ Resolves the VLAN and VSAN conditions

  ◦ Reports the configuration and operational states to Cisco UCS Central

Changing the Service Profile Association

Procedure

	Command or Action	**Purpose**
Step 1	UCSC# **connect resource-mgr**	Enters resource manager mode.
Step 2	UCSC(resource-mgr) # **scope org**	Enters organization mode for the specified organization. To enter the root organization mode, type / as the *org-name*.
Step 3	UCSC(resource-mgr)# /org # **scope service-profile** *profile-name*	Enters organization service profile mode for the specified service profile.
Step 4	UCSC(resource-mgr) /org/service-profile # **associate server** {*rack-server-id* | *chassis-id*/*blade-server-id* | *chassis-id*/*cartridge-id*/*server-id*}	Associates the service profile with the specified server. Choose one of the following: • **rack-server-id**—For C-Series Rack servers, enter the rack server ID. • **chassis-id/blade-server-id**—For B-Series Blade servers, enter the chassis ID and the blade server ID. • **chassis-id/cartridge-id/server-id**—For M-Series Modular servers, enter the chassis ID, cartridge ID, and the server ID for the cartridge.
Step 5	UCSC(resource-mgr) /org/service-profile # **commit-buffer**	Commits the transaction to the system configuration.

The following example shows how to change the service profile association to a C-Series Rack server and commit the transaction:

```
UCSC# connect resource-mgr
UCSC(resource-mgr)# scope org /
UCSC(resource-mgr) /org* # scope service-profile GSP1
UCSC(resource-mgr) /org/service-profile # associate server 3
UCSC(resource-mgr) /org/service-profile* # commit-buffer
UCSC(resource-mgr) /org/service-profile #
```

The following example shows how to change the service profile association to a B-Series Blade server and commit the transaction:

```
UCSC# connect resource-mgr
UCSC(resource-mgr)# scope org /
UCSC(resource-mgr) /org* # scope service-profile GSP2
UCSC(resource-mgr) /org/service-profile # associate server 1/1
UCSC(resource-mgr) /org/service-profile* # commit-buffer
UCSC(resource-mgr) /org/service-profile #
```

The following example shows how to change the service profile association to an M-Series Modular server and commit the transaction:

```
UCSC# connect resource-mgr
UCSC(resource-mgr)# scope org /
UCSC(resource-mgr) /org* # scope service-profile GSP3
UCSC(resource-mgr) /org/service-profile # associate server 1/4/2
UCSC(resource-mgr) /org/service-profile* # commit-buffer
UCSC(resource-mgr) /org/service-profile #
```

Scheduling Service Profile Updates

Deferred Deployment of Service Profiles

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 acknowledgement.

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 Central, 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
- Reacknowledging 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.

Guidelines and Limitations for Deferred Deployment

Cannot Undo All Changes to Service Profiles or Service Profile Templates

If you cancel a pending change, Cisco UCS Central attempts to roll back the change without rebooting the server. However, for complex changes, Cisco UCS Central may have to reboot the server a second time to roll back the change. For example, if you delete a vNIC, Cisco UCS Central 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 Central schedules a second deployment and reboot of the server.

Association of Service Profile Can Exceed Boundaries of Maintenance Window

After Cisco UCS Central 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 Central 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 Central deploys the service profile changes, it updates the service profile to match the most recent configuration in the database.

Deferred Deployment Schedules

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 has been reached, that deployment is carried over to the next maintenance window.

Each schedule checks periodically to see whether the Cisco UCS domain has entered one or more maintenance windows. If it has, 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 has been 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 has been reached.

Creating a Schedule

Procedure

	Command or Action	Purpose
Step 1	UCSC# **connect policy-mgr**	Enters policy manager mode.
Step 2	UCSC(policy-mgr) # **scope domain-group** *domain-group*	Enters domain group root mode and (optionally) enters a domain group under the domain group root. To enter the domain group root mode, type / as the *domain-group*.
Step 3	UCSC(policy-mgr) /domain-group # **create schedule** *schedule-name*	Creates a schedule and enters schedule mode.
Step 4	UCSC(policy-mgr) /domain-group/schedule # **commit-buffer**	Commits the transaction to the system.

The following example shows how to create a schedule and commit the transaction:

```
UCSC# connect policy-mgr
UCSC(policy-mgr)# scope domain-group /
UCSC(policy-mgr) /domain-group # create schedule MaintSched1
UCSC(policy-mgr) /domain-group/schedule* # commit-buffer
UCSC(policy-mgr) /domain-group/schedule #
```

Creating a One Time Occurrence for a Schedule

Procedure

	Command or Action	Purpose
Step 1	UCSC# **connect policy-mgr**	Enters policy manager mode.
Step 2	UCSC(policy-mgr) # **scope domain-group** *domain-group*	Enters domain group root mode and (optionally) enters a domain group under the domain group

	Command or Action	Purpose
		root. To enter the domain group root mode, type / as the *domain-group*.
Step 3	UCSC(policy-mgr) /domain-group # **scope schedule** *schedule-name*	Enters schedule mode for the specified schedule.
Step 4	UCSC(policy-mgr) /domain-group/schedule # **set admin-state user-ack**	Specifies user acknowledgment is required for the specified schedule.
Step 5	UCSC(policy-mgr) /domain-group/schedule # **create occurrence one-time** *occurrence-name*	Creates a one time occurrence.
Step 6	UCSC(policy-mgr) /domain-group/schedule/one-time # **set concur-tasks** {**unlimited** | *max-num-concur-tasks*}	Sets the maximum number of tasks that can run concurrently during this occurrence. If the maximum number of tasks is reached, the scheduler waits for the amount of time set in the minimum interval property before scheduling new tasks.
Step 7	UCSC(policy-mgr) /domain-group/schedule/one-time # **set date** *month day-of-month year hour minute*	Sets the date and time this occurrence should run.
Step 8	UCSC(policy-mgr) /domain-group/schedule/one-time # **set max-duration** {*none* | *num-of-days num-of-hours num-of-minutes num-of-seconds*}	Sets the maximum length of time that this schedule occurrence can run. Cisco UCS completes as many scheduled tasks as possible within the specified time.
Step 9	UCSC(policy-mgr) /domain-group/schedule/one-time # **set min-interval** {*none* | *num-of-days num-of-hours num-of-minutes num-of-seconds*}	Sets the minimum length of time that the system should wait before starting a new task.
Step 10	UCSC(policy-mgr) /domain-group/schedule/one-time # **set proc-cap** {**unlimited** | *max-num-of-tasks*}	Sets the maximum number of scheduled tasks that can be run during this occurrence.
Step 11	UCSC(policy-mgr) /domain-group/schedule/one-time # **commit-buffer**	Commits the transaction to the system configuration.

The following example shows how to create a one time occurrence called onetimemaint for a schedule called maintsched, set the maximum number of concurrent tasks to 5, set the start date to September 1, 2013 at 11:00, and commits the transaction:

```
UCSC# scope system
UCSC(policy-mgr)# scope domain-group
UCSC(policy-mgr) /domain-group # scope schedule maintsched
UCSC(policy-mgr) /domain-group/schedule # create occurrence one-time onetimemaint
UCSC(policy-mgr) /domain-group/schedule/one-time* # set date sep 1 2013 11 00
UCSC(policy-mgr) /domain-group/schedule/one-time* # set concur-tasks 5
UCSC(policy-mgr) /domain-group/schedule/one-time* # commit-buffer
UCSC(policy-mgr) /domain-group/schedule/one-time #
```

Creating a Recurring Occurrence for a Schedule

Procedure

	Command or Action	**Purpose**
Step 1	UCSC# **connect policy-mgr**	Enters policy manager mode.
Step 2	UCSC(policy-mgr) # **scope domain-group** *domain-group*	Enters domain group root mode and (optionally) enters a domain group under the domain group root. To enter the domain group root mode, type / as the *domain-group*.
Step 3	UCSC(policy-mgr) /domain-group # **scope schedule** *schedule-name*	Enters schedule mode for the specified schedule.
Step 4	UCSC(policy-mgr) /domain-group/schedule # **set admin-state user-ack**	Specifies user acknowledgment is required for the specified schedule.
Step 5	UCSC(policy-mgr) /domain-group/schedule # **create occurrence recurring** *occurrence-name*	Creates a recurring occurrence.
Step 6	UCSC(policy-mgr) /domain-group/schedule/recurring # **set concur-tasks** {**unlimited** | *max-num-concur-tasks*}	Sets the maximum number of tasks that can run concurrently during this occurrence. If the maximum number of tasks is reached, the scheduler waits for the amount of time set in the minimum interval property before scheduling new tasks.
Step 7	UCSC(policy-mgr) /domain-group/schedule/recurring # **set day** {**even-day** | **every-day** | **friday** | **monday** | **never** | **odd-day** | **saturday** | **sunday** | **thursday** | **tuesday** | **wednesday**}	Specifies the day on which Cisco UCS runs an occurrence of this schedule. By default, this property is set to never.
Step 8	UCSC(policy-mgr) /domain-group/schedule/recurring # **set hour** *hour*	Specifies the hour at which this occurrence starts. **Note** Cisco UCS ends all recurring occurrences on the same day in which they start, even if the maximum duration has not been reached. For example, if you specify a start time of 11 p.m. and a maximum duration of 3 hours, Cisco UCS starts the occurrence at 11 p.m. but ends it at 11:59 p.m. after only 59 minutes.
Step 9	UCSC(policy-mgr) /domain-group/schedule/recurring # **set minute** *minute*	Specifies the minute at which this occurrence starts.
Step 10	UCSC(policy-mgr) /domain-group/schedule/recurring # **set**	Sets the maximum length of time that this schedule occurrence can run. Cisco UCS completes as many

	Command or Action	Purpose
	max-duration {*none* | *num-of-days num-of-hours num-of-minutes num-of-seconds*}	scheduled tasks as possible within the specified time.
Step 11	UCSC(policy-mgr) /domain-group/schedule/recurring # **set min-interval** {*none* | *num-of-days num-of-hours num-of-minutes num-of-seconds*}	Sets the minimum length of time that the system should wait before starting a new task.
Step 12	UCSC(policy-mgr) /domain-group/schedule/recurring # **set proc-cap** {**unlimited** | *max-num-of-tasks*}	Sets the maximum number of scheduled tasks that can be run during this occurrence.
Step 13	UCSC(policy-mgr) /domain-group/schedule/recurring # **commit-buffer**	Commits the transaction to the system configuration.

The following example shows how to create a recurring occurrence called recurmaint for a schedule called maintsched, set the maximum number of concurrent tasks to 5, sets the day this occurrence will run to even days, sets the time it will start to 11:05, and commits the transaction:

```
UCSC# scope system
UCSC(policy-mgr)# scope domain-group
UCSC(policy-mgr) /domain-group # scope schedule maintsched
UCSC(policy-mgr) /domain-group/schedule # create occurrence recurring recurmaint
UCSC(policy-mgr) /domain-group/schedule/recurring* # set day even-day
UCSC(policy-mgr) /domain-group/schedule/recurring* # set hour 11
UCSC(policy-mgr) /domain-group/schedule/recurring* # set minute 5
UCSC(policy-mgr) /domain-group/schedule/recurring* # set concur-tasks 5
UCSC(policy-mgr) /domain-group/schedule/recurring* # commit-buffer
UCSC(policy-mgr) /domain-group/schedule/recurring #
```

Pending Activities

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

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

You can view the following information related to pending activities:

- Name of the service profile to be deployed and associated 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.

From Cisco UCS Central GUI you can view the pending activities from the following two locations:

- From **Servers** on the menu bar, click **Servers** > **Pending Activities**. Pending activities are displayed in two tabs, such as **User Acknowledged Activities** and **Scheduled Activities**.

- The Cisco UCS Central GUI displays a fault summary panel above the menu bar with the following information in dynamic display. You can click one of the following three options to launch associated page on Cisco UCS Central GUI.

  ◦ **UCS Central Fault Summary**

  ◦ **UCS Domains Fault Summary**

  ◦ **Pending Activities**

When the display is on **Pending Activities**, click on the panel to go to **Servers** > **Pending Activities** and view details.

Important Top level summary panel does not display pending activities caused by local service profile using a local maintenance policy with local scheduler. These pending activities must be acknowledged from Cisco UCS Manager..

Maintenance Policy

A maintenance policy determines how Cisco UCS Central reacts when a change that requires a server reboot is made to a service profile associated with a server or to an updating service profile bound to one or more service profiles.

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

- Immediately

- When acknowledged by a user with admin privileges

- Automatically at the time specified in a schedule

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
Step 1	UCSC# **connect policy-mgr**	Enters policy manager mode.
Step 2	UCSC(policy-mgr) # **scope domain-group** *domain-group*	Enters domain group root mode and (optionally) enters a domain group under the domain group root. To enter the domain group root mode, type / as the *domain-group*.
Step 3	UCSC(policy-mgr) /domain-group # **create maint-policy** *policy-name*	Creates the specified maintenance policy and enters maintenance policy mode.
Step 4	UCSC(policy-mgr) /domain-group/maint-policy # **set reboot-policy** {**immediate** | **timer-automatic** | **user-ack**}	When a service profile is associated with a server, the server needs to be rebooted to complete the association. Specifying the reboot-policy command determines when the reboot occurs for all service profiles that include this maintenance policy. Possible values include: • **immediate**—The server reboots as soon as the change is made to the service profile. • **timer-automatic** —You select the schedule that specifies when maintenance operations can be applied to the server using the set scheduler command. Cisco UCS reboots the server and completes the service profile changes at the scheduled time. • **user-ack** —The user must explicitly acknowledge the changes by using the **apply pending-changes** command before changes are applied.

	Command or Action	Purpose
Step 5	UCSC(policy-mgr) /domain-group/maint-policy # **set scheduler** *scheduler-name*	(Optional) 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.
Step 6	UCSC(policy-mgr) /domain-group/maint-policy # **commit-buffer**	Commits the transaction to the system configuration.

The following example shows how to create a maintenance policy called MaintPol1, set the system to reboot immediately when a service profile is associated with a server, and commit the transaction:

```
UCSC# connect policy-mgr
UCSC(Policy-mgr)# scope domain-group
UCSC(policy-mgr) /domain-group# create maint-policy MaintPol1
UCSC(policy-mgr) /domain-group/maint-policy* # set reboot-policy immediate
UCSC(policy-mgr) /domain-group/maint-policy* # commit-buffer
UCSC(policy-mgr) /domain-group/maint-policy #
```

Deleting a Maintenance Policy

Procedure

	Command or Action	Purpose
Step 1	UCSC# **connect policy-mgr**	Enters policy manager mode.
Step 2	UCSC(policy-mgr) # **scope org** *org-name*	Enters organization mode for the specified organization. To enter the root organization mode, type / as the *org-name*.
Step 3	UCSC(policy-mgr) /org # **delete maint-policy** *policy-name*	Deletes the specified maintenance policy.
Step 4	UCSC(policy-mgr) /org #	Commits the transaction to the system configuration.

The following example shows how to delete a maintenance policy called maintenance and commit the transaction:

```
UCSC# connect policy-mgr
UCSC(policy-mgr)# scope org /
UCSC(policy-mgr)/org # delete maint-policy maintenance
UCSC(policy-mgr)/org* # commit-buffer
UCSC(policy-mgr)/org #
```