



Setting the Management IP Address

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Management IP Address

Each server in a Cisco UCS domain must have a one or more management IP addresses assigned to its Cisco Integrated Management Controller (CIMC) or to the service profile associated with the server. Cisco UCS Manager uses these IP addresses for external access that terminates in the CIMC. This external access can be through one of the following services:

- KVM console
- Serial over LAN
- An IPMI tool

The management IP addresses used to access the CIMC on a server can be out-of-band (OOB) addresses, through which traffic traverses the fabric interconnect via the management port, or inband addresses, through which traffic traverses the fabric interconnect via the fabric uplink port. Up to six IP addresses can be configured to access the CIMC on a server, two out-of-band (OOB) and four inband.

You can configure the following management IP addresses:

- A static OOB IPv4 address assigned directly to the server
- An OOB IPv4 address assigned to the server from a global ext-mgmt pool
- An inband IPv4 address derived from a service profile associated with the server
- An inband IPv4 address drawn from a management IP pool and assigned to a service profile or service profile template

- An static inband IPv6 address assigned directly to the server
- An inband IPv6 address derived from a service profile associated with the server

You can assign multiple management IP addresses to each CIMC on the server and to the service profile associated with the server. If you do so, you must use different IP addresses for each of them.

A management IP address that is assigned to a service profile moves with that service profile. If KVM or SoL sessions are active when you migrate the service profile to another server, Cisco UCS Manager terminates the sessions and does not restart them after the migration is completed. You configure the IP address when you create or modify a service profile.

**Note**

You cannot assign a static IP address to a server or service profile if that IP address has already been assigned to a server or service profile in the Cisco UCS domain. If you attempt to do so, Cisco UCS Manager warns you that the IP address is already in use and rejects the configuration.

An ARP request will be sent to the gateway IP address every second from each server that is configured with an Inband IP address. This is to check if connectivity for the Inband traffic through the current Fabric Interconnect is up, and to initiate a failover to the other Fabric Interconnect if it is down. The path selected for Inband and the failover operations are completely independent of the server data traffic.

Configuring the Management IP Address on a Blade Server

Configuring a Blade Server to Use a Static IP Address

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>chassis-id / blade-id</i>	Enters chassis server mode for the specified server.
Step 2	UCS-A /chassis/server # scope cimc	Enters chassis server CIMC mode.
Step 3	UCS-A /chassis/server/cimc # create ext-static-ip	Creates a static management IP address for the specified server.
Step 4	UCS-A /chassis/server/cimc/ext-static-ip # set addr ip-addr	Specifies the static IPv4 address to be assigned to the server.
Step 5	UCS-A /chassis/server/cimc/ext-static-ip # set default-gw ip-addr	Specifies the default gateway that the IP address should use.
Step 6	UCS-A /chassis/server/cimc/ext-static-ip # set subnet ip-addr	Specifies the subnet mask for the IP address.
Step 7	UCS-A /chassis/server/cimc/ext-static-ip # commit-buffer	Commits the transaction to the system configuration.

The following example configures a static management IP address for chassis 1 server 1, sets the static IPv4 address, sets the default gateway, sets the subnet mask, and commits the transaction:

```
UCS-A# scope server 1/1
UCS-A /chassis/server # scope cimc
UCS-A /chassis/server/cimc # create ext-static-ip
UCS-A /chassis/server/cimc/ext-static-ip* # set addr 192.168.10.10
UCS-A /chassis/server/cimc/ext-static-ip* # set default-gw 192.168.10.1
UCS-A /chassis/server/cimc/ext-static-ip* # set subnet 255.255.255.0
UCS-A /chassis/server/cimc/ext-static-ip* # commit-buffer
UCS-A /chassis/server/cimc/ext-static-ip #
```

Configuring a Blade Server to Use a Static IPv6 Address

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>chassis-id</i> / <i>blade-id</i>	Enters chassis server mode for the specified server.
Step 2	UCS-A /chassis/server # scope cimc	Enters chassis server CIMC mode.
Step 3	UCS-A /chassis/server/cimc # create ext-static-ip6	Creates a static management IPv6 address for the specified server.
Step 4	UCS-A /chassis/server/cimc/ext-static-ip6 # set addr ipv6-addr	Specifies the static IPv6 address to be assigned to the server.
Step 5	UCS-A /chassis/server/cimc/ext-static-ip6 # set default-gw ipv6-addr	Specifies the default gateway that the IPv6 address should use.
Step 6	UCS-A /chassis/server/cimc/ext-static-ip6 # set prefix ipv6-addr	Specifies the network prefix for an IPv6 address.
Step 7	UCS-A /chassis/server/cimc/ext-static-ip6 # commit-buffer	Commits the transaction to the system configuration.

The following example configures a static management IPv6 address for chassis 1 server 1, sets a static IPv6 address, sets the default gateway, sets the network prefix, and commits the transaction:

```
UCS-A# scope server 1/1
UCS-A /chassis/server # scope cimc
UCS-A /chassis/server/cimc # create ext-static-ip6
UCS-A /chassis/server/cimc/ext-static-ip* # set addr 2001:888::10
UCS-A /chassis/server/cimc/ext-static-ip* # set default-gw 2001:888::100
UCS-A /chassis/server/cimc/ext-static-ip* # set prefix 64
UCS-A /chassis/server/cimc/ext-static-ip* # commit-buffer
UCS-A /chassis/server/cimc/ext-static-ip #
```

Configuring a Blade Server to Use the Management IP Pool

Deleting the static management IP address returns the specified server to the management IP pool.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>chassis-id / blade-id</i>	Enters chassis server mode for the specified server.
Step 2	UCS-A /chassis/server # scope cimc	Enters chassis server CIMC mode.
Step 3	UCS-A /chassis/server/cimc # delete { <i>ext-static-ip ext-static-ip6</i> }	Deletes the external static IPv4 or IPv6 address and returns the blade server to the management IP pool.
Step 4	UCS-A /chassis/server/cimc/ # commit-buffer	Commits the transaction to the system configuration.

The following example deletes the static management IP address for chassis 1 server 1 and commits the transaction:

```
UCS-A# scope server 1/1
UCS-A /chassis/server # scope cimc
UCS-A /chassis/server/cimc # delete ext-static-ip
UCS-A /chassis/server/cimc* # commit-buffer
UCS-A /chassis/server/cimc/ #
```

The following example deletes the static management IPv6 address for chassis 1 server 1 and commits the transaction:

```
UCS-A# scope server 1/1
UCS-A /chassis/server # scope cimc
UCS-A /chassis/server/cimc # delete ext-static-ip6
UCS-A /chassis/server/cimc* # commit-buffer
UCS-A /chassis/server/cimc/ #
```

Configuring the Management IP Address on a Rack Server

Configuring a Rack Server to Use a Static IP Address

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>blade-id</i>	Enters server mode for the specified server.
Step 2	UCS-A /server # scope cimc	Enters server CIMC mode.
Step 3	UCS-A /server/cimc # create ext-static-ip	Creates a static management IP address for the specified server.
Step 4	UCS-A /server/cimc/ext-static-ip # set addr <i>ip-addr</i>	Specifies the static IPv4 address to be assigned to the server.

	Command or Action	Purpose
Step 5	UCS-A /server/cimc/ext-static-ip # set default-gw <i>ip-addr</i>	Specifies the default gateway that the IP address should use.
Step 6	UCS-A /server/cimc/ext-static-ip # set subnet <i>ip-addr</i>	Specifies the subnet mask for the IP address.
Step 7	UCS-A /server/cimc/ext-static-ip # commit-buffer	Commits the transaction to the system configuration.

The following example configures a static management IP address for rack server 1, sets the static IPv4 address, sets the default gateway, sets the subnet mask, and commits the transaction:

```
UCS-A# scope server 1
UCS-A /server # scope cimc
UCS-A /server/cimc # create ext-static-ip
UCS-A /server/cimc/ext-static-ip* # set addr 192.168.10.10
UCS-A /server/cimc/ext-static-ip* # set default-gw 192.168.10.1
UCS-A /server/cimc/ext-static-ip* # set subnet 255.255.255.0
UCS-A /server/cimc/ext-static-ip* # commit-buffer
UCS-A /server/cimc/ext-static-ip #
```

Configuring a Rack Server to Use a Static IPv6 Address

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>blade-id</i>	Enters server mode for the specified server.
Step 2	UCS-A /server # scope cimc	Enters server CIMC mode.
Step 3	UCS-A /server/cimc # create ext-static-ip6	Creates a static management IPv6 address for the specified server.
Step 4	UCS-A /server/cimc/ext-static-ip6 # set addr <i>ip6-addr</i>	Specifies the static IPv6 address to be assigned to the server.
Step 5	UCS-A /server/cimc/ext-static-ip6 # set default-gw <i>ip6-addr</i>	Specifies the default gateway that the IP address should use.
Step 6	UCS-A /server/cimc/ext-static-ip6 # set prefix <i>ip6-addr</i>	Specifies the network prefix for the IPv6 address.
Step 7	UCS-A /server/cimc/ext-static-ip # commit-buffer	Commits the transaction to the system configuration.

The following example configures a static management IPv6 address for rack server 1, sets the static IPv4 address, sets the default gateway, sets the network prefix, and commits the transaction:

```
UCS-A# scope server 1
UCS-A /server # scope cimc
UCS-A /server/cimc # create ext-static-ip6
UCS-A /server/cimc/ext-static-ip6* # set addr 2001::8999
UCS-A /server/cimc/ext-static-ip6* # set default-gw 2001::1
UCS-A /server/cimc/ext-static-ip6* # set prefix 64
UCS-A /server/cimc/ext-static-ip6* # commit-buffer
UCS-A /server/cimc/ext-static-ip #
```

Configuring a Rack Server to Use the Management IP Pool

Deleting the static management IP address returns the specified server to the management IP pool.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope server <i>blade-id</i>	Enters server mode for the specified server.
Step 2	UCS-A /server # scope cimc	Enters server CIMC mode.
Step 3	UCS-A /server/cimc # delete { <i>ext-static-ip</i> <i>ext-static-ip6</i> }	Deletes the external static IPv4 or IPv6 address and returns the rack server to the management IP pool.
Step 4	UCS-A /server/cimc/ # commit-buffer	Commits the transaction to the system configuration.

The following example deletes the static management IP address for rack server 1 and commits the transaction:

```
UCS-A# scope server 1
UCS-A /server # scope cimc
UCS-A /server/cimc # delete ext-static-ip
UCS-A /server/cimc* # commit-buffer
UCS-A /server/cimc/ #
```

The following example deletes the static management IPv6 address for rack server 1 and commits the transaction:

```
UCS-A# scope server 1
UCS-A /server # scope cimc
UCS-A /server/cimc # delete ext-static-ip6
UCS-A /server/cimc* # commit-buffer
UCS-A /server/cimc/ #
```

Setting the Management IP Address on a Service Profile or Service Profile Template

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope org <i>org-name</i>	Enters organization mode for the specified organization. To enter the root organization mode, type / as the org-name.
Step 2	UCS-A /org # scope service-profile <i>profile-name</i>	Enters organization service profile mode for the specified service.
Step 3	UCS-A /org/service-profile # set ext-mgmt-ip-state { <i>none</i> <i>ext-pooled-ip</i> <i>ext-pooled-ip6</i> <i>ext-static-ip</i> <i>ext-static-ip6</i> }	Specifies how the management IPv4 or IPv6 address will be assigned to the service profile. You can set the management IP address policy using the following options: <ul style="list-style-type: none"> • None--The service profile is not assigned an IP address. • Pooled--The service profile is assigned an IP address from the management IPv4 or IPv6 pool. • Static--The service profile is assigned the configured static IPv4 or IPv6 address. Note Setting the ext-management-ip-state to static for a service profile template is not supported and will result in an error.
Step 4	UCS-A /org/service-profile # commit-buffer	Commits the transaction to the system configuration.

The following example sets the management address policy for a service profile called accounting to static IPv4 and then commits the transaction:

```
UCS-A# scope org /
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # set ext-mgmt-ip-state ext-static-ip
UCS-A /org/service-profile* # commit-buffer
UCS-A /org/service-profile #
```

What to Do Next

If you have set the management IP address to static, configure a server to use a static IP address.

Configuring the Management IP Pool

Management IP Pools

The default management IP pool, **IP Pool ext-mgmt** is a collection of external IPv4 and IPv6 addresses. Cisco UCS Manager reserves each block of IP addresses in the management IP pool for external access that terminates in the CIMC on a server.

By default, the **IP Pool ext-mgmt** is used to configure the CIMC outbound management IP address. You cannot change this IP pool if already a static IP address is assigned to the server from this pool. If you want to configure the outbound management IP address for CIMC from a static IP address, then you can delete the IP addresses from the default management IP pool.

You can configure separate out-of-band IPv4 address pools, and in-band IPv4 or IPv6 address pools. You can configure in-band pools that contain both IPv4 and IPv6 address blocks.



Tip

To avoid assigning an IP pool that contains only IPv4 addresses as the in-band IPv6 policy, or assigning an IP pool that contains only IPv6 addresses as the in-band IPv4 policy to a server CIMC, it is suggested that you configure separate in-band address pools, each with only IPv4 or IPv6 addresses.

You can configure service profiles and service profile templates to use IP addresses from the management IP pools. You cannot configure servers to use the management IP pool.

All IP addresses in the management IP pool must be in the same IPv4 subnet, or have the same IPv6 network prefix as the IP address of the fabric interconnect.



Note

The management IP pool must not contain any IP addresses that were assigned as static IP addresses for a server or service profile.

Configuring IP Address Blocks for the Management IP Pool

The management IP pool must not contain any IP addresses that were assigned as static IP addresses for a server or service profile.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope org /	Enters root organization mode.
Step 2	UCS-A /org # scope ip-pool ext-mgmt	Enters organization IP pool mode. Note You cannot create (or delete) a management IP pool. You can only enter (scope to) the existing default pool.

	Command or Action	Purpose
Step 3	UCS-A /org/ip-pool # set descr <i>description</i>	(Optional) Provides a description for the management IP pool. This description applies to all address blocks in the management IP pool. 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 4	UCS-A /org/ip-pool # set assignmentorder { default sequential }	This can be one of the following: <ul style="list-style-type: none"> • default—Cisco UCS Manager selects a random identity from the pool. • sequential—Cisco UCS Manager selects the lowest available identity from the pool.
Step 5	UCS-A /org/ip-pool # create block <i>first-ip-addr last-ip-addr gateway-ip-addr subnet-mask</i>	Creates a block (range) of IP addresses, and enters organization IP pool block mode. You must specify the first and last IP addresses in the address range, the gateway IP address, and subnet mask. Note An IP pool can contain more than one IP block. To create multiple blocks, enter multiple create block commands from organization IP pool mode.
Step 6	UCS-A /org/ip-pool/block # set primary-dns <i>ip-addrress</i> secondary-dns <i>ip-address</i>	Specifies the primary DNS and secondary DNS IP addresses.
Step 7	UCS-A /org/ip-pool/ ipv6-block # commit-buffer	Commits the transaction to the system configuration.
Step 8	UCS-A /org/ip-pool/block # exit	Exits IPv4 block configuration mode.
Step 9	UCS-A /org/ip-pool # create ipv6-block <i>first-ip6-addr last-ip6-addr gateway-ip6-addr prefix</i>	Creates a block (range) of IPv6 addresses, and enters organization IP pool IPv6 block mode. You must specify the first and last IPv6 addresses in the address range, the gateway IPv6 address, and network prefix. Note An IP pool can contain more than one IPv6 block. To create multiple IPv6 blocks, enter multiple create ipv6-block commands from organization IP pool mode.
Step 10	UCS-A /org/ip-pool/ipv6-block # set primary-dns <i>ip6-address</i> secondary-dns <i>ip6-address</i>	Specifies the primary DNS and secondary DNS IPv6 addresses.
Step 11	UCS-A /org/ip-pool/ipv6-block # commit-buffer	Commits the transaction to the system configuration.

The following example configures an IPv4 address block for the management IP pool, specifies the primary and secondary IPv4 addresses, creates an IPv6 block, specifies the primary and secondary IPv6 addresses and commits the transaction:

```
UCS-A# scope org /
UCS-A /org # scope ip-pool ext-mgmt-ip
UCS-A /org/ip-pool* # set descr "This is a management ip pool example."
UCS-A /org/ip-pool* # create block 192.168.100.1 192.168.100.200 192.168.100.10 255.255.255.0
UCS-A /org/ip-pool/block* # set primary-dns 192.168.100.1 secondary-dns 192.168.100.20
UCS-A /org/ip-pool/block* commit-buffer
UCS-A /org/ip-pool/block exit
UCS-A /org/ip-pool* # create ipv6-block 2001:888::10 2001:888::100 2001:888::1 64
UCS-A /org/ip-pool/ipv6- block* set primary-dns 2001:888::11 secondary-dns 2001:888::12
UCS-A /org/ip-pool/ipv6- block* commit-buffer
UCS-A /org/ip-pool/ipv6- block #UCS-A /org/ip-pool/block* # commit-buffer
UCS-A /org/ip-pool/block #
```

The following example configures an IPv6 address block for the management IP pool and commits the transaction:

```
UCS-A# scope org /
UCS-A /org #scope ip-pool ext-mgmt-ip
UCS-A /org/ip-pool* # set descr "This is a management IPv6 pool example."
UCS-A /org/ip-pool* # create ipv6-block 2001:888::10 2001:888::100 2001:888::1 64
UCS-A /org/ip-pool/ipv6-block* # commit-buffer
UCS-A /org/ip-pool/ipv6-block* #
```

What to Do Next

Configure one or more service profiles or service profile templates to obtain the CIMC IP address from the management IP pool.

Deleting an IP Address Block from the Management IP Pool

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope org <i>org-name</i>	Enters organization mode for the specified organization. To enter the root organization mode, type / as the <i>org-name</i> .
Step 2	UCS-A /org # scope ip-pool ext-mgmt	Enters the management IP pool.
Step 3	UCS-A /org/ip-pool # delete { <i>ip-block ipv6-block</i> } { <i>first-ip-addr first-ip6-addr</i> } { <i>last-ip-addr last-ip6-addr</i> }	Deletes the specified block (range) of IPv4 or IPv6 addresses.
Step 4	UCS-A /org/ip-pool # commit-buffer	Commits the transaction to the system configuration.

The following example deletes an IP address block from the management IP pool and commits the transaction:

```
UCS-A# scope org /
UCS-A /org # scope ip-pool ext-mgmt
```

```
UCS-A /org/ip-pool # delete block 192.168.100.1 192.168.100.200
UCS-A /org/ip-pool* # commit-buffer
UCS-A /org/ip-pool #
```

This example shows how to delete an IPv6 address block from the management IP pool and commit the transaction:

```
UCS-A# scope org /
UCS-A /org # scope ip-pool pool4
UCS-A /org/ip-pool # delete ipv6-block 2001::1 2001::10
UCS-A /org/ip-pool* # commit-buffer
UCS-A /org/ip-pool #
```

