



Configuring Server Boot

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Boot Policy

The boot policy determines the following:

- Configuration of the boot device
- Location from which the server boots
- Order in which boot devices are invoked

For example, you can choose to have associated servers boot from a local device, such as a local disk or CD-ROM (VMedia), or you can select a SAN boot or a LAN (PXE) boot.

You must include this policy in a service profile, and that service profile must be associated with a server for it to take effect. If you do not include a boot policy in a service profile, the server uses the default settings in the BIOS to determine the boot order.



Note

Changes to a boot policy might be propagated to all servers created with an updating service profile template that includes that boot policy. Reassociation of the service profile with the server to rewrite the boot order information in the BIOS is automatically triggered.

Creating a Boot Policy

You can also create a local boot policy that is restricted to a service profile or service profile template. However, we recommend that you create a global boot policy that can be included in multiple service profiles or service profile templates.

Before You Begin

If you are creating a boot policy that boots the server from a SAN LUN and you require reliable SAN boot operations, you must first remove all local disks from servers associated with a service profile that includes the boot policy.

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 <i>/</i> as the <i>org-name</i> .
Step 2	UCS-A /org # create boot-policy <i>policy-name</i> [purpose { operational utility }]	Creates a boot policy with the specified policy name, and enters organization boot policy mode. When you create the boot policy, specify the operational option. This ensures that the server boots from the operating system installed on the server. The utility options is reserved and should only be used if instructed to do so by a Cisco representative.
Step 3	UCS-A /org/boot-policy # set descr <i>description</i>	(Optional) Provides a description for the boot policy. Note If your description includes spaces, special characters, or punctuation, you must begin and end your description with quotation marks. The quotation marks do not appear in the description field of any show command output.
Step 4	UCS-A /org/boot-policy # set reboot-on-update { no yes }	Specifies whether the servers using this boot policy are automatically rebooted after you make changes to the boot order.
Step 5	UCS-A /org/boot-policy # set enforce-vnic-name { no yes }	If you choose yes , Cisco UCS Manager uses any vNICs or vHBAs defined in the Boot Order . If you choose no , Cisco UCS Manager uses the priority specified in the vNIC or vHBA.
Step 6	UCS-A /org/boot-policy # commit-buffer	Commits the transaction to the system configuration.

The following example creates a boot policy named boot-policy-LAN, provides a description for the boot policy, specifies that servers using this policy will not be automatically rebooted when the boot order is changed, and commits the transaction:

```
UCS-A# scope org /
UCS-A /org* # create boot-policy boot-policy-LAN purpose operational
UCS-A /org/boot-policy* # set descr "Boot policy that boots from the LAN."
UCS-A /org/boot-policy* # set reboot-on-update no
UCS-A /org/boot-policy* # commit-buffer
UCS-A /org/boot-policy #
```

What to Do Next

Configure one or more of the following boot options for the boot policy and set their boot order:

- **LAN Boot** —Boots from a centralized provisioning server. It is frequently used to install operating systems on a server from that server.

If you choose the LAN Boot option, continue to [Configuring a LAN Boot for a Boot Policy](#), on page 38.

- **Storage Boot** — Boots from an operating system image on the SAN. You can specify a primary and a secondary SAN boot. If the primary boot fails, the server attempts to boot from the secondary.

We recommend that you use a SAN boot, because it offers the most service profile mobility within the system. If you boot from the SAN, when you move a service profile from one server to another, the new server boots from exactly the same operating system image. Therefore, the new server appears to be exactly the same server to the network.

If you choose the Storage Boot option, continue to [Configuring a SAN Boot for a Boot Policy](#), on page 4.

- **Virtual Media Boot** —Mimics the insertion of a physical CD into a server. It is typically used to manually install operating systems on a server.

If you choose the Virtual Media boot option, continue to [Configuring a Virtual Media Boot for a Boot Policy](#), on page 40.



Tip

If you configure a local disk and a SAN LUN for the boot order storage type and the operating system or logical volume manager (LVM) is configured incorrectly, the server might boot from the local disk rather than the SAN LUN.

For example, on a server with Red Hat Linux installed, where the LVM is configured with default LV names and the boot order is configured with a SAN LUN and a local disk, Linux reports that there are two LVs with the same name and boots from the LV with the lowest SCSI ID, which could be the local disk.

Include the boot policy in a service profile and/or template.

SAN Boot

You can configure a boot policy to boot one or more servers from an operating system image on the SAN. The boot policy can include a primary and a secondary SAN boot. If the primary boot fails, the server attempts to boot from the secondary.

We recommend that you use a SAN boot, because it offers the most service profile mobility within the system. If you boot from the SAN when you move a service profile from one server to another, the new server boots from the exact same operating system image. Therefore, the new server appears to be the exact same server to the network.

To use a SAN boot, ensure that the following is configured:

- The Cisco UCS domain must be able to communicate with the SAN storage device that hosts the operating system image.
- A boot target LUN on the device where the operating system image is located.

Configuring a SAN Boot for a Boot Policy



Tip

If you configure a local disk and a SAN LUN for the boot order storage type and the operating system or logical volume manager (LVM) is configured incorrectly, the server might boot from the local disk rather than the SAN LUN.

For example, on a server with Red Hat Linux installed, where the LVM is configured with default LV names and the boot order is configured with a SAN LUN and a local disk, Linux reports that there are two LVs with the same name and boots from the LV with the lowest SCSI ID, which could be the local disk.

This procedure continues directly from [Creating a Boot Policy](#).

Before You Begin

Create a boot policy to contain the SAN boot configuration.



Note

If you are creating a boot policy that boots the server from a SAN LUN and you require reliable SAN boot operations, we recommend that you first remove all local disks from servers associated with a service profile that includes the boot policy.

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 boot-policy <i>policy-name</i>	Enters organization boot policy mode for the specified boot policy.
Step 3	UCS-A /org/boot-policy # create storage	Creates a SAN boot for the boot policy and enters organization boot policy storage mode.
Step 4	UCS-A /org/boot-policy/storage # set order {1 2 3 4}	Sets the boot order for the SAN boot.

	Command or Action	Purpose
Step 5	UCS-A /org/boot-policy/storage # create san-image {primary secondary}	Creates a SAN image location, and if the san-image option is specified, enters organization boot policy storage SAN image mode. When using the enhanced boot order on Cisco UCS M3 servers, the boot order that you define is used. For standard boot mode, the use of the terms primary or secondary boot devices does not imply a boot order. The effective order of boot devices within the same device class is determined by PCIe bus scan order.
Step 6	UCS-A /org/boot-policy/storage/san-image # set vhma vhma-name	Specifies the vHBA to be used for the SAN boot.
Step 7	UCS-A /org/boot-policy/storage/san-image # create path {primary secondary}	Creates a primary or secondary SAN boot path and enters organization boot policy SAN path mode. When using the enhanced boot order on Cisco UCS M3 servers, the boot order that you define is used. For standard boot mode, the use of the terms primary or secondary boot devices does not imply a boot order. The effective order of boot devices within the same device class is determined by PCIe bus scan order.
Step 8	UCS-A /org/boot-policy/storage/san-image/path # set {lun lun-id wwn wwn-num}	Specifies the LUN or WWN to be used for the SAN path to the boot image.
Step 9	UCS-A /org/boot-policy/storage/san-image/path # commit-buffer	Commits the transaction to the system configuration.

The following example enters the boot policy named lab1-boot-policy, creates a SAN boot for the policy, sets the boot order to 1, creates a primary SAN image, uses a vHBA named vHBA2, creates primary path using LUN 967295200, and commits the transaction:

```
UCS-A# scope org /
UCS-A /org* # scope boot-policy lab1-boot-policy
UCS-A /org/boot-policy* # create storage
UCS-A /org/boot-policy/storage* # set order 1
UCS-A /org/boot-policy/storage* # create san-image primary
UCS-A /org/boot-policy/storage* # set vhma vHBA2
UCS-A /org/boot-policy/storage/san-image* # create path primary
UCS-A /org/boot-policy/storage/san-image/path* # set lun 967295200
UCS-A /org/boot-policy/storage/san-image/path* # commit-buffer
UCS-A /org/boot-policy/storage/san-image/path #
```

What to Do Next

Include the boot policy in a service profile and/or template.

iSCSI Boot

iSCSI boot enables a server to boot its operating system from an iSCSI target machine located remotely over a network.

iSCSI boot is supported on the following Cisco UCS hardware:

- Cisco UCS server blades that have the Cisco UCS M51KR-B Broadcom BCM57711 network adapter and use the default MAC address provided by Broadcom.
- Cisco UCS M81KR Virtual Interface Card
- Cisco UCS VIC-1240 Virtual Interface Card
- Cisco UCS VIC-1280 Virtual Interface Card

There are prerequisites that must be met before you configure iSCSI boot. For a list of these prerequisites, see [iSCSI Boot Guidelines and Prerequisites](#), on page 7.

For a high-level procedure for implementing iSCSI boot, see [Configuring iSCSI Boot](#), on page 9.

iSCSI Boot Process

Cisco UCS Manager uses the iSCSI vNIC and iSCSI boot information created for the service profile in the association process to program the adapter, located on the server. After the adapter is programmed, the server reboots with the latest service profile values. After the power on self-test (POST), the adapter attempts to initialize using these service profile values. If the adapter can use the values and log in to its specified target, the adapter initializes and posts an iSCSI Boot Firmware Table (iBFT) to the host memory and a valid bootable LUN to the system BIOS. The iBFT that is posted to the host memory contains the initiator and target configuration that is programmed on the primary iSCSI vNIC.

**Note**

Previously, the host would see only one of the boot paths configured, depending on which path completed the LUN discovery first, and would boot from that path. Now, when there are two iSCSI boot vNICs configured, the host will see both of the boot paths. So for multipath configurations, a single IQN needs to be configured on both the boot vNICs. If there are different IQNs configured on the boot vNICs on a host, the host will boot with the IQN that is configured on the boot vNIC with the lower PCI order.

The next step, which is the installation of the operating system (OS), requires an OS that is iBFT capable. During installation of the OS, the OS installer scans the host memory for the iBFT table and uses the information in the iBFT to discover the boot device and create an iSCSI path to the target LUN. In some OS's a NIC driver is required to complete this path. If this step is successful, the OS installer finds the iSCSI target LUN on which to install the OS.

**Note**

The iBFT works at the OS installation software level and might not work with HBA mode (also known as TCP offload). Whether iBFT works with HBA mode depends on the OS capabilities during installation. Also, for a server that includes a Cisco UCS M51KR-B Broadcom BCM57711 adapter, the iBFT normally works at a maximum transmission unit (MTU) size of 1500, regardless of the MTU jumbo configuration. If the OS supports HBA mode, you might need to set HBA mode, dual-fabric support, and jumbo MTU size after the iSCSI installation process.

iSCSI Boot Guidelines and Prerequisites

These guidelines and prerequisites must be met before configuring iSCSI boot:

- After the iSCSI boot policies have been created, a user with ls-compute privileges can include them in a service profile or service profile template. However, a user with only ls-compute privileges cannot create iSCSI boot policies.
- To set up iSCSI boot from a Windows 2008 server where the second vNIC (failover vNIC) must boot from an iSCSI LUN, consult Microsoft Knowledge Base Article 976042. Microsoft has a known issue where Windows might fail to boot from an iSCSI drive or cause a bugcheck error if the networking hardware is changed. To work around this issue, follow the resolution recommended by Microsoft.
- The storage array must be licensed for iSCSI boot and the array side LUN masking must be properly configured.
- Two IP addresses must be determined, one for each iSCSI initiator. If possible, the IP addresses should be on the same subnet as the storage array. The IP addresses are assigned statically or dynamically using the Dynamic Host Configuration Protocol (DHCP).
- You cannot configure boot parameters in the Global boot policy. Instead, after configuring boot parameters, you need to include the boot policy in the appropriate service profile.
- The operating system (OS) must be iSCSI Boot Firmware Table (iBFT) compatible.
- For Cisco UCS M51KR-B Broadcom BCM57711 network adapters:
 - Servers that use iSCSI boot must contain the Cisco UCS M51KR-B Broadcom BCM57711 network adapter. For information on installing or replacing an adapter card, see the *Cisco UCS B250 Extended Memory Blade Server Installation and Service Note*. The service note is accessible from the *Cisco UCS B-Series Servers Documentation Roadmap* at <http://www.cisco.com/go/unifiedcomputing/b-series-doc>.
 - Set the MAC addresses on the iSCSI device.
 - If you are using the DHCP Vendor ID (Option 43), configure the MAC address of an iSCSI device in `/etc/dhcpd.conf`.
 - HBA mode (also known as TCP offload) and the boot to target setting are supported. However, only Windows OS supports HBA mode during installation.
 - Before installing the OS, disable the boot to target setting in the iSCSI adapter policy, then after installing the OS, reenable the boot to target setting.

**Note**

Each time you change an adapter policy setting, the adapter reboots to apply the new setting.

- When installing the OS on the iSCSI target, the iSCSI target must be ordered *before* the device where the OS image resides. For example, if you are installing the OS on the iSCSI target from a CD, the boot order should be the iSCSI target and then the CD.
 - After the server has been iSCSI booted, do not modify the Initiator Name, Target name, LUN, iSCSI device IP, or Netmask/gateway using the Broadcom tool.
 - Do not interrupt the POST (power on self-test) process or the Cisco UCS M51KR-B Broadcom BCM57711 network adapter will fail to initialize.
- For Cisco UCS M81KR Virtual Interface Card and Cisco UCS VIC-1240 Virtual Interface Card:
 - Do not set MAC addresses on the iSCSI device.
 - HBA mode and the boot to target setting are *not* supported.
 - When installing the OS on the iSCSI target, the iSCSI target must be ordered *after* the device where the OS image resides. For example, if you are installing the OS on the iSCSI target from a CD, the boot order should be the CD and then the iSCSI target.
 - If you are using the DHCP Vendor ID (Option 43), the MAC address of the overlay vNIC needs to be configured in `/etc/dhcpd.conf`.
 - After the server has been iSCSI booted, do not modify the IP details of the overlay vNIC.
 - The VMware ESX/ESXi operating system does not support storing a core dump file to an iSCSI boot target LUN. Dump files must be written to a local disk.

Initiator IQN Configuration

Cisco UCS uses the following rules to determine the initiator IQN for an adapter iSCSI vNIC at the time a service profile is associated with a physical server:

- An initiator IQN at the service profile level *and* at the iSCSI vNIC level cannot be used together in a service profile.
- If an initiator IQN is specified at the service profile level, all of the adaptor iSCSI vNICs are configured to use the same initiator IQN, except in the case of DHCP Option 43, where the initiator IQN is set to empty on the adaptor iSCSI vNIC.
- When an initiator IQN is set at the iSCSI vNIC level, the initiator IQN at the service profile level is removed, if one is present.
- If there are two iSCSI vNIC in a service profile and only one of them has the initiator IQN set, the second one is configured with the default IQN pool. You can change this configuration later. The only exception is if DHCP Option 43 is configured. In this case, the initiator IQN on the second iSCSI vNIC is removed during service profile association.

Enabling MPIO on Windows



Note If you change the networking hardware, Windows may fail to boot from an iSCSI drive. For more information, see [Microsoft support Article ID: 976042](#).

Before You Begin

The server on which you enable MPIO must have a Cisco VIC driver.

If there are multiple paths configured to the boot LUN, only one path should be enabled when the LUN is installed.

Procedure

- Step 1** In the service profile associated with the server, configure the primary iSCSI vNIC. For more information, see [Creating an iSCSI vNIC in a Service Profile, on page 19](#).
- Step 2** Using the primary iSCSI vNIC, install the Windows operating system on the iSCSI target LUN.
- Step 3** After Windows installation is completed, enable MPIO on the host.
- Step 4** In the service profile associated with the server, add the secondary iSCSI vNIC to the boot policy. For more information, see [Creating an iSCSI Boot Policy, on page 16](#).

Configuring iSCSI Boot

When you configure an adapter or blade in Cisco UCS to iSCSI boot from a LUN target, you need to complete all of the following steps.

Procedure

	Command or Action	Purpose
Step 1	Configure the iSCSI boot adapter policy.	(Optional) For more information, see Creating an iSCSI Adapter Policy, on page 11
Step 2	Configure the authentication profiles to be used by the initiator and target.	(Optional) For more information, see Creating an Authentication Profile, on page 12
Step 3	If you plan to configure the iSCSI initiator to use an IP address from a pool of IP addresses, add a block of IP addresses to the iSCSI initiator pool.	(Optional) For more information, see Adding a Block of IP Addresses to the Initiator Pool, on page 14

	Command or Action	Purpose
Step 4	Create a boot policy that can be used in any service profile. Alternatively, you can create a local boot policy only for the specific service policy. However, we recommend that you create a boot policy that can be shared with multiple service profiles.	For more information about creating a boot policy that can be used in any service profile, see Creating an iSCSI Boot Policy , on page 16.
Step 5	If you created a boot policy that can be used in any service profile, you need to assign it to the service profile. Otherwise, proceed to the next step.	For more information, see Creating a Service Profile Template .
Step 6	Configure an Ethernet vNIC in a service profile.	The Ethernet vNIC is used as the overlay vNIC for the iSCSI device. For more information, see Configuring a vNIC for a Service Profile .
Step 7	Create an iSCSI vNIC in a service profile.	For more information, see Creating an iSCSI vNIC in a Service Profile , on page 19
Step 8	Set the iSCSI initiator to boot using a static IP Address, an IP address from an IP pool, or DHCP.	See either Creating an iSCSI Initiator that Boots Using a Static IP Address , on page 21, Creating an iSCSI Initiator that Boots Using an IP Address from an IP Pool , on page 24, or Creating an iSCSI Initiator that Boots Using DHCP , on page 26.
Step 9	Create an iSCSI static or auto target.	For more information, see either Creating an iSCSI Static Target , on page 32 or Creating an iSCSI Auto Target , on page 35.
Step 10	Associate the service profile with a server.	For more information, see Associating a Service Profile with a Blade Server or Server Pool .
Step 11	Verify the iSCSI boot operation.	For more information, see Verifying iSCSI Boot , on page 37
Step 12	Install the OS on the server.	For more information, see one of the following guides: <ul style="list-style-type: none"> • <i>Cisco UCS B-Series Blade Servers VMware Installation Guide</i> • <i>Cisco UCS B-Series Blade Servers Linux Installation Guide</i> • <i>Cisco UCS B-Series Blade Servers Windows Installation Guide</i>
Step 13	Boot the server.	

Creating an iSCSI Adapter Policy

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 # create iscsi-policy <i>policy-name</i>	Creates the iSCSI adapter policy.
Step 3	UCS-A /org/iscsi-policy # set descr <i>description</i>	(Optional) Provides a description for the iSCSI adapter policy.
Step 4	UCS-A /org/iscsi-policy # set iscsi-protocol-item connection-timeout <i>timeout-secs</i>	The number of seconds to wait until Cisco UCS assumes that the initial login has failed and the iSCSI adapter is unavailable. Enter an integer between 0 and 255. If you enter 0, Cisco UCS uses the value set in the adapter firmware (default: 15 seconds).
Step 5	UCS-A /org/iscsi-policy # set iscsi-protocol-item dhcp-timeout <i>timeout-secs</i>	The number of seconds to wait before the initiator assumes that the DHCP server is unavailable. Enter an integer between 60 and 300 (default: 60 seconds).
Step 6	UCS-A /org/iscsi-policy # set iscsi-protocol-item lun-busy-retry-count <i>num</i>	The number of times to retry the connection in case of a failure during iSCSI LUN discovery. Enter an integer between 0 and 60. If you enter 0, Cisco UCS uses the value set in the adapter firmware (default: 15 seconds).
Step 7	UCS-A /org/iscsi-policy # set iscsi-protocol-item tcp-time-stamp {no yes}	Specifies whether to apply a TCP timestamp. With this setting, transmitted packets are given a time stamp of when the packet was sent so that the packet's round-trip time can be calculated, when needed. This setting applies only to Cisco UCS M51KR-B Broadcom BCM57711 adapters.
Step 8	UCS-A /org/iscsi-policy # set iscsi-protocol-item hbamode {no yes}	Specifies whether to enable HBA mode. This option should only be enabled for servers with the Cisco UCS NIC M51KR-B adapter running the Windows operating system.
Step 9	UCS-A /org/iscsi-policy # set iscsi-protocol-item boottotarget {no yes}	Specifies whether to boot from the iSCSI target. This option only applies to servers with the Cisco UCS NIC M51KR-B adapter. It should be disabled until you have installed an operating system on the server.

	Command or Action	Purpose
Step 10	UCS-A /org/iscsi-policy # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to create an iSCSI adapter policy called `iscsiboot`, set the connection timeout, DHCP timeout, and LUN busy retry count, apply a TCP timestamp, and commit the transaction:

```
UCS-A# scope org /
UCS-A /org # create iscsi-policy iscsiboot
UCS-A /org/iscsi-policy* # set iscsi-protocol-item connection-timeout 60
UCS-A /org/iscsi-policy* # set iscsi-protocol-item dhcp-timeout 200
UCS-A /org/iscsi-policy* # set iscsi-protocol-item lun-busy-retry-count 5
UCS-A /org/iscsi-policy* # set iscsi-protocol-item tcp-time-stamp yes
UCS-A /org/iscsi-policy* # set iscsi-protocol-item hbamode yes
UCS-A /org/iscsi-policy* # set iscsi-protocol-item boottotarget yes
UCS-A /org/iscsi-policy* # commit-buffer
UCS-A /org/iscsi-policy #
```

What to Do Next

Include the adapter policy in a service profile and/or template.

Deleting an iSCSI Adapter Policy

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 <code>/</code> as the <i>org-name</i> .
Step 2	UCS-A /org # delete iscsi-policy <i>policy-name</i>	Deletes the iSCSI adapter policy.
Step 3	UCS-A /org # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to delete an iSCSI adapter policy named `iscsi-adapter-pol` and commit the transaction:

```
UCS-A# scope org /
UCS-A /org # delete iscsi-policy iscsi-adapter-pol
UCS-A /org* # commit-buffer
UCS-A /org #
```

Creating an Authentication Profile

If you use authentication for iSCSI boot, you need to create an authentication profile for both the initiator and target.

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 # create auth-profile <i>profile-name</i>	Creates an authentication profile with the specified name. The name can be up to 16 alphanumeric characters.
Step 3	UCS-A /org/auth-profile* # set user-id <i>id-name</i>	Creates a log in for authentication.
Step 4	UCS-A /org/auth-profile* # set password	Creates a password for authentication.
Step 5	UCS-A /org/auth-profile* # commit-buffer	Commits the transaction to the system configuration.
Step 6	UCS-A /org/auth-profile* # exit	Exits the current mode.
Step 7	Repeat steps 2 through 6 to create an authentication profile for the target.	

The following example shows how to create an authentication profile for an initiator and target and commit the transaction:

```
UCS-A# scope org
UCS-A /org # create auth-profile InitAuth
UCS-A /org/auth-profile* # set user-id init
UCS-A /org/auth-profile* # set password
Enter a password:
Confirm the password:
UCS-A /org/auth-profile* # commit-buffer
UCS-A /org/auth-profile # exit
UCS-A /org # create auth-profile TargetAuth
UCS-A /org/auth-profile* # set user-id target
UCS-A /org/auth-profile* # set password
Enter a password:
Confirm the password:
UCS-A /org/auth-profile* # commit-buffer
UCS-A /org/auth-profile # exit
```

What to Do Next

Create an Ethernet vNIC to be used as the overlay vNIC for the iSCSI device, and then create an iSCSI vNIC.

Deleting an Authentication Profile

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 # delete auth-profile <i>auth-profile-name</i>	Deletes the specified authentication profile.
Step 3	UCS-A /org # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to delete an authentication profile called iscsi-auth and commit the transaction:

```
UCS-A# scope org
UCS-A /org # delete auth-profile iscsi-auth
UCS-A /org* # commit-buffer
UCS-A /org #
```

Adding a Block of IP Addresses to the Initiator Pool

You can create a group of IP addresses to be used for iSCSI boot. Cisco UCS Manager reserves the block of IP addresses you specify.

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

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, enter / as the <i>org-name</i> .
Step 2	UCS-A /org# scope ip-pool iscsi-initiator-pool	Enters the mode to specify an iSCSI initiator pool.
Step 3	UCS-A /org/ip-pool # set descr <i>description</i>	(Optional) Provides a description for the 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.

	Command or Action	Purpose
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 from_ip_address to_ip_address default_gateway subnet_mask	Creates a block of IP addresses for the iSCSI initiator.
Step 6	UCS-A/org/ip-pool/block# show detail expand	(Optional) Shows the block of IP addresses that you have created.
Step 7	UCS-A /org/ip-pool/block # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to create an IP initiator pool for the iSCSI vNIC and commit the transaction:

```
UCS-A # scope org /
UCS-A /org # scope ip-pool iscsi-initiator-pool
UCS-A /org/ip-pool # create block 40.40.40.10 40.40.40.50 40.40.40.1 255.0.0.0
UCS-A /org/ip-pool/block # show detail expand
Block of IP Addresses:
  From: 40.40.40.10
  To: 40.40.40.50
  Default Gateway: 40.40.40.1
  Subnet Mask: 255.0.0.0
UCS-A /org/ip-pool/block # commit buffer
```

What to Do Next

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

Deleting a Block of IP Addresses from the Initiator Pool

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope org org-name	Enters organization mode for the specified organization. To enter the root organization mode, enter / as the <i>org-name</i> .
Step 2	UCS-A /org# scope ip-pool iscsi-initiator-pool	Enters the mode to specify an iSCSI initiator pool.

	Command or Action	Purpose
Step 3	UCS-A /org/ip-pool# delete block <i>from_ip_address to_ip_address</i>	Deletes the specified block of IP addresses from the initiator pool.
Step 4	UCS-A/org/ip-pool/block# show detail expand	(Optional) Shows that the block of IP addresses has been deleted.
Step 5	UCS-A /org/ip-pool# commit buffer	Commits the transaction to the system configuration.

The following example shows how to delete a block of IP addresses from the initiator pool and commit the transaction:

```
UCS-A # scope org /
UCS-A /org # scope ip-pool iscsi-initiator-pool
UCS-A /org/ip-pool # delete block 40.40.40.10 40.40.40.50 40.40.40.1 255.0.0.0
UCS-A /org/ip-pool # show detail expand

IP Pool:
  Name: iscsi-initiator-pool
  Size: 0
  Assigned: 0
  Descr:
UCS-A /org/ip-pool # commit buffer
```

Creating an iSCSI Boot Policy

You can add up to two iSCSI vNICs per boot policy. One vNIC acts as the primary iSCSI boot source, and the other acts as the secondary iSCSI boot source.

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 # create boot-policy <i>policy-name</i> [purpose { operational utility }]	Creates a boot policy with the specified policy name, and enters organization boot policy mode. This name can be between 1 and 16 alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen), _ (underscore), : (colon), and . (period), and you cannot change this name after the object has been saved. When you create the boot policy, specify the operational option. This ensures that the server boots from the operating system installed on the server. The utility options is reserved and should only be used if instructed to do so by a Cisco representative.

	Command or Action	Purpose
Step 3	UCS-A /org/boot-policy # set descr <i>description</i>	(Optional) Provides a description for the boot policy. Note If your description includes spaces, special characters, or punctuation, you must begin and end your description with quotation marks. The quotation marks do not appear in the description field of any show command output.
Step 4	UCS-A /org/boot-policy # set enforce-vnic-name {no yes}	(Optional) If you choose yes , Cisco UCS Manager reports whether the device name specified in the boot policy matches what is specified in the service profile. If you choose no , Cisco UCS Manager uses any vNIC, vHBA, or iSCSI device from the service profile and does not report whether the device name specified in the boot policy matches what is specified in the service profile.
Step 5	UCS-A /org/boot-policy # set reboot-on-update {no yes}	Specifies whether the servers using this boot policy are automatically rebooted after you make changes to the boot order. In the Cisco UCS Manager GUI, if the Reboot on Boot Order Change check box is checked for a boot policy, and if CD-ROM or Floppy is the last device in the boot order, deleting or adding the device does not directly affect the boot order and the server does not reboot.
Step 6	UCS-A /org/boot-policy # create iscsi	Adds an iSCSI boot to the boot policy.
Step 7	UCS-A /org/boot-policy/iscsi # create path {primary secondary}	Specifies the primary and secondary paths that Cisco UCS Manager uses to reach the iSCSI target. With iSCSI boot, you set up two paths. Cisco UCS Manager uses the primary path first, and if that fails, then it uses the secondary path.
Step 8	UCS-A /org/boot-policy/iscsi/path # create iscsivnicname <i>iscsi-vnic-name</i>	Creates an iSCSI vNIC.
Step 9	UCS-A /org/boot-policy/iscsi/path # exit	Exits iSCSI path mode.
Step 10	UCS-A /org/boot-policy/iscsi/path # set order <i>order-num</i>	Specifies the order for the iSCSI boot in the boot order.
Step 11	Repeat steps 8-10 to create secondary iSCSI vNICs.	(Optional)
Step 12	UCS-A /org/boot-policy/iscsi # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to create an iSCSI boot policy named `iscsi-boot-policy-LAN`, provide a description for the boot policy, specify that servers using this policy are not automatically rebooted when the boot order is changed, set the boot order for iSCSI boot to 2, create an iSCSI boot and associate it with a vNIC called `iscsienic1`, and commit the transaction:

```
UCS-A# scope org /
UCS-A /org* # create boot-policy iscsi-boot-policy-LAN purpose operational
UCS-A /org/boot-policy* # set descr "Boot policy that boots from iSCSI."
UCS-A /org/boot-policy* # set enforce-vnic-name yes
UCS-A /org/boot-policy* # set reboot-on-update no
UCS-A /org/boot-policy* # create iscsi
UCS-A /org/boot-policy/iscsi* # create path primary
UCS-A /org/boot-policy/iscsi/path* # set iscsivnicname iscsienic1
UCS-A /org/boot-policy/iscsi/path* # exit
UCS-A /org/boot-policy/iscsi* # set order 2
UCS-A /org/boot-policy/iscsi* # commit-buffer
UCS-A /org/boot-policy #
```

What to Do Next

Include the boot policy in a service profile and/or template.

After a server is associated with a service profile that includes this boot policy, you can verify the actual boot order in the **Boot Order Details** area on the **General** tab for the server.

Deleting iSCSI Devices from a Boot Policy

Procedure

	Command or Action	Purpose
Step 1	UCS-A# <code>scope org org-name</code>	Enters organization mode for the specified organization. To enter the root organization mode, type <code>/</code> as the <code>org-name</code> .
Step 2	UCS-A /org # <code>scope boot-policy boot-pol-name</code>	Enters boot policy organization mode for the specified boot policy.
Step 3	UCS-A /org/boot-policy # <code>delete iscsi</code>	Deletes the iSCSI boot from the boot policy.
Step 4	UCS-A /org/boot-policy # <code>commit-buffer</code>	Commits the transaction to the system configuration.

The following example shows how to delete an iSCSI boot from the boot policy named `boot-policy-iscsi` and commit the transaction:

```
UCS-A# scope org /
UCS-A /org # scope boot-policy boot-policy-iscsi
UCS-A /org/boot-policy # delete iscsi
UCS-A /org/boot-policy* # commit-buffer
UCS-A /org/boot-policy #
```

Setting an Initiator IQN at the Service Profile Level

In a service profile, you can create an initiator with a specific IQN or one that is derived from a pool of IQNs.

Before You Begin

You cannot delete an IQN using the CLI.

To understand the initiator IQN configuration guidelines, see [Initiator IQN Configuration](#), on page 8.

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 service-profile <i>profile-name</i>	Enters service profile organization mode for the service profile.
Step 3	UCS-A /org/service-profile# set iscsi-identity { initiator name <i>initiator-name</i> initiator-pool-name <i>pool-name</i> }	Creates an initiator with the specified name. The name can be up to 16 alphanumeric characters.
Step 4	UCS-A /org/service-profile* # commit buffer	Commits the transaction to the system configuration.
Step 5	UCS-A /org/auth-profile* # exit	Exits the current mode.

The following example shows how to create a specific name for an iSCSI initiator and commit the transaction:

```
UCS-A# scope org /
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # set iscsi-identity initiator-name manual:IQN
UCS-A /org/service-profile* # commit-buffer
```

Creating an iSCSI vNIC in a Service Profile

You can create an iSCSI vNIC in a service profile.

Before You Begin

You must have an Ethernet vNIC in a service profile to be used as the overlay vNIC for the iSCSI device.

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 service-profile <i>profile-name</i>	Enters service profile organization mode for the service profile.

	Command or Action	Purpose
Step 3	UCS-A /org/service-profile # create vnic-iscsi <i>iscsi-vnic-name</i> .	Specifies the iSCSI vNIC name.
Step 4	UCS-A /org/service-profile/vnic-iscsi* # set iscsi-adaptor-policy <i>iscsi-adaptor-name</i>	(Optional) Specifies the iSCSI adaptor policy that you have created for this iSCSI vNIC.
Step 5	UCS-A /org/service-profile/vnic-iscsi* # set auth-name <i>authentication-profile-name</i>	(Optional) Sets the authentication profile to be used by the iSCSI vNIC. The authentication profile must already exist for it to be set. For more information, see Creating an Authentication Profile , on page 12.
Step 6	UCS-A /org/service-profile/vnic-iscsi* # set identity { dynamic-mac { <i>dynamic-mac-address</i> derived } mac-pool <i>mac-pool-name</i> }	Specifies the MAC address for the iSCSI vNIC. Note The MAC address is only set for Cisco UCS NIC M51KR-B adapters.
Step 7	UCS-A /org/service-profile/vnic-iscsi* # set iscsi-identity { initiator-name <i>initiator-name</i> initiator-pool-name <i>iqn-pool-name</i> }	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 8	UCS-A /org/service-profile/vnic-iscsi* # set overlay-vnic-name <i>overlay-vnic-name</i>	Specifies the Ethernet vNIC that is used by the iSCSI device as the overlay vNIC. For more information, see Configuring a vNIC for a Service Profile .
Step 9	UCS-A /org/service-profile/vnic-iscsi* # create eth-if	Creates an Ethernet interface for a VLAN assigned to the iSCSI vNIC.
Step 10	UCS-A /org/service-profile/vnic-iscsi/eth-if* # set vllanname <i>vlan-name</i> .	Specifies the VLAN name. The default VLAN is default. For the Cisco UCS M81KR Virtual Interface Card and the Cisco UCS VIC-1240 Virtual Interface Card, the VLAN that you specify must be the same as the native VLAN on the overlay vNIC. For the Cisco UCS M51KR-B Broadcom BCM57711 adapter, the VLAN that you specify can be any VLAN assigned to the overlay vNIC.
Step 11	UCS-A /org/service-profile/vnic-iscsi # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to create an iSCSI vNIC called scsivnic1, add it to an existing service profile called accounting, and commit the transaction:

```
UCS-A# scope org /
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # create vnic-iscsi iSCSI1
UCS-A /org/service-profile/vnic-iscsi* # set iscsi-adaptor-policy iscsiboot
UCS-A /org/service-profile/vnic-iscsi* # set auth-name initauth
UCS-A /org/service-profile/vnic-iscsi* # set identity dynamic-mac derived
UCS-A /org/service-profile/vnic-iscsi* # set iscsi-identity initiator-name iSCSI1
```

```
UCS-A /org/service-profile/vnic-iscsi* # set overlay-vnic-name eth1
UCS-A /org/service-profile/vnic-iscsi* # create eth-if
UCS-A /org/service-profile/vnic-iscsi/eth-if* # set vlannname default
UCS-A /org/service-profile/vnic-iscsi/eth-if* # commit buffer
```

What to Do Next

Configure an iSCSI initiator to boot using a static IP address, an IP address from a configured IP pool, or DHCP.

Deleting an iSCSI vNIC from a Service Profile

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 service-profile <i>profile-name</i>	Enters service profile organization mode for the service profile.
Step 3	UCS-A /org/service-profile # delete vnic-iscsi <i>iscsi-vnic-name</i>	Deletes the specified iSCSI vNIC from the specified service profile.
Step 4	UCS-A /org/service-profile # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to delete an iSCSI vNIC called scsivnic1 and commit the transaction:

```
UCS-A# scope org /
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # delete vnic-iscsi scsivnic1
UCS-A /org/service-profile* # commit-buffer
UCS-A /org/service-profile #
```

Creating an iSCSI Initiator that Boots Using a Static IP Address

In a service profile, you can create an iSCSI initiator and configure it to boot using a static IP address.

Before You Begin

You have completed the following:

- Created iSCSI overlay vNICs in a service profile.
- Created an iSCSI vNIC in a service profile.

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 service-profile <i>profile-name</i>	Enters service profile organization mode for the service profile.
Step 3	UCS-A /org/service-profile # scope vnic-iscsi <i>iscsi-vnic-name</i>	Enters the configuration mode for the specified iSCSI vNIC.
Step 4	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # create ip-if	Creates an IP interface.
Step 5	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/eth-if/ip-if* # enter static-ip-params	Specifies that you are entering static IP boot parameters.
Step 6	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/eth-if/ip-if/static-ip-params* # set addr <i>ip-address</i>	Specifies the static IP address.
Step 7	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/eth-if/ip-if/static-ip-params* # set default-gw <i>ip-address</i>	Specifies the default gateway IP address.
Step 8	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/eth-if/ip-if/static-ip-params* # set primary-dns <i>ip-address</i>	Specifies the primary DNS IP address.
Step 9	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/eth-if/ip-if/static-ip-params* # set secondary-dns <i>ip-address</i>	Specifies the secondary DNS IP address.
Step 10	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/eth-if/ip-if/static-ip-params* # set subnet <i>subnet-ip-address</i>	Specifies the subnet mask.
Step 11	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/eth-if/ip-if/static-ip-params* # commit buffer	Commits the transaction to the system configuration.

The following example shows how to configure the initiator to boot using a static IP address and commit the transaction:

```
UCS-A # scope org
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # scope vnic-iscsi iSCSI1
```

```

UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # create ip-if
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if* # enter static-ip-params
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/static-ip-params* # set addr
10.104.105.193
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/static-ip-params* # set default-gw
10.104.105.1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/static-ip-params* # set primary-dns
11.11.11.100
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/static-ip-params* # set secondary-dns
11.11.11.100
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/static-ip-params* # set subnet
255.255.255.0
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/static-ip-params* # commit-buffer

```

What to Do Next

Create an iSCSI target.

Deleting the Static IP Address Boot Parameters from an iSCSI Initiator

In a service profile, you can delete the static IP address boot parameters from an iSCSI initiator.

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 service-profile <i>profile-name</i>	Enters service profile organization mode for the service profile.
Step 3	UCS-A /org/service-profile # scope vnic-iscsi <i>iscsi-vnic-name</i>	Enters the configuration mode for the specified iSCSI vNIC.
Step 4	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # scope ip-if	Enters the configuration mode for an IP interface.
Step 5	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if* # delete static-ip-params	Deletes the static IP boot parameters from an initiator.
Step 6	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/static-ip-params* # commit buffer	Commits the transaction to the system configuration.

The following example shows how to delete the static IP address boot parameters from the initiator and commit the transaction:

```

UCS-A # scope org
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # scope vnic-iscsi iSCSI1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # scope ip-if
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if # delete static-ip-params
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if* # commit-buffer

```

Creating an iSCSI Initiator that Boots Using an IP Address from an IP Pool

In a service profile, you can create an iSCSI initiator and configure it to boot using an IP address from an IP pool that you have created.

Before You Begin

You have completed the following:

- Created an overlay vNIC in a service profile
- Created an iSCSI vNIC in a service profile.

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 service-profile <i>profile-name</i>	Enters service profile organization mode for the service profile.
Step 3	UCS-A /org/service-profile # scope iscsi-boot	Enters the configuration mode for configuring iSCSI boot parameters.
Step 4	UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi <i>iscsi-vnic-name</i>	Enters the configuration mode for the specified iSCSI vNIC.
Step 5	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi* # scope ip-if	Enters the configuration mode for the iSCSI Ethernet interface.
Step 6	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if* # enter pooled-ip-params	Specifies that the iSCSI initiator boot using one of the IP addresses from the previously created iSCSI initiator IP pool.
Step 7	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/pooled-ip-params* # commit buffer	Commits the transaction to the system configuration.

The following example shows how to create an iSCSI initiator and configure it to boot using an IP address from an IP pool:

```
UCS-A # scope org
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi iSCSI1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # scope ip-if
```



```
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if* # enter pooled-ip-params
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/pooled-ip-params* # commit buffer
```

What to Do Next

Create an iSCSI target.

Deleting the IP Pool Boot Parameter from an iSCSI Initiator

In a service profile, you can create an iSCSI initiator and configure it to boot using an IP address from an IP pool that you have created.

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 service-profile <i>profile-name</i>	Enters service profile organization mode for the service profile.
Step 3	UCS-A /org/service-profile # scope iscsi-boot	Enters the configuration mode for configuring the iSCSI boot parameters.
Step 4	UCS-A /org/service-profile/iscsi-boot/ # scope vnic-iscsi <i>iscsi-vnic-name</i>	Enters the configuration mode for the specified iSCSI vNIC.
Step 5	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # enter ip-if	Enters the configuration mode for an IP interface.
Step 6	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if* # delete pooled-ip-params	Specifies that the iSCSI initiator does not use an IP address from an IP pool to boot.
Step 7	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/pooled-ip-params* # commit buffer	Commits the transaction to the system configuration.

The following example shows how to delete the boot using an IP address from an IP pool parameter and commit the transaction:

```
UCS-A # scope org
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # scope iscsi-boot
UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi iSCSI1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # enter ip-if
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if* # delete pooled-ip-params
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/pooled-ip-params* # commit buffer
```

Creating an iSCSI Initiator that Boots Using DHCP

In a service profile, you can create an iSCSI initiator and configure it to boot using DHCP.

Before You Begin

You have completed the following:

- Created iSCSI overlay vNICs in a service profile.
- Created an iSCSI vNIC in a service profile.

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 service-profile <i>profile-name</i>	Enters service profile organization mode for the service profile.
Step 3	UCS-A /org/service-profile # scope iscsi-boot	Enters the configuration mode for configuring iSCSI boot parameters.
Step 4	UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi <i>iscsi-vnic-name</i>	Enters the configuration mode for the specified iSCSI vNIC.
Step 5	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # create ip-if	Creates an IP interface.
Step 6	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if* # create dhcp-ip-params	Specifies that you are setting the initiator to boot using DHCP.
Step 7	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/dhcp-ip-params* # commit buffer	Commits the transaction to the system configuration.

The following example shows how to configure the initiator to boot using DHCP and commit the transaction:

```
UCS-A # scope org
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # scope iscsi-boot
UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi iSCSI1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # create ip-if
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if* # create dhcp-ip-params
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/dhcp-ip-params* # commit-buffer
```

What to Do Next

Create an iSCSI target.

Deleting the DHCP Boot Parameter from an iSCSI Initiator

In a service profile, you can remove the DHCP boot parameter from an iSCSI initiator.

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 service-profile <i>profile-name</i>	Enters service profile organization mode for the service profile.
Step 3	UCS-A /org/service-profile # scope iscsi-boot	Enters the configuration mode for configuring iSCSI boot parameters.
Step 4	UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi <i>iscsi-vnic-name</i>	Enters the configuration mode for the specified iSCSI vNIC.
Step 5	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # enter ip-if	Enters the configuration mode for an IP interface.
Step 6	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if* # delete dhcp-ip-params	Specifies that the initiator does not use DHCP to boot.
Step 7	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/dhcp-ip-params* # commit buffer	Commits the transaction to the system configuration.

The following example shows how to delete the boot using DHCP parameter and commit the transaction:

```
UCS-A # scope org
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # scope iscsi-boot
UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi iSCSI1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # enter ip-if
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if* # delete dhcp-ip-params
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ip-if/dhcp-ip-params* # commit-buffer
```

IQN Pools

An IQN pool is a collection of iSCSI Qualified Names (IQNs) for use as initiator identifiers by iSCSI vNICs in a Cisco UCS domain.

IQN pool members are of the form *prefix:suffix:number*, where you can specify the prefix, suffix, and a block (range) of numbers.

An IQN pool can contain more than one IQN block, with different number ranges and different suffixes, but sharing the same prefix.

Creating an IQN Pool



Note In most cases, the maximum IQN size (prefix + suffix + additional characters) is 223 characters. When using the Cisco UCS NIC M51KR-B adapter, you must limit the IQN size to 128 characters.

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, enter / as the <i>org-name</i> .
Step 2	UCS-A /org # create iqn-pool <i>pool-name</i>	Creates an IQN pool with the specified pool name and enters organization IQN pool mode. This name can be between 1 and 32 alphanumeric characters. You cannot use spaces or any special characters other than - (hyphen), _ (underscore), : (colon), and . (period), and you cannot change this name after the object has been saved.
Step 3	UCS-A /org/iqn-pool # set iqn-prefix <i>prefix</i>	Specifies the prefix for the IQN block members. Unless limited by the adapter card, the prefix can contain up to 150 characters.
Step 4	UCS-A /org/iqn-pool # set descr <i>description</i>	(Optional) Provides a description for the IQN pool. Enter up to 256 characters. 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 5	UCS-A /org/iqn-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 6	UCS-A /org/iqn-pool # create block <i>suffix from to</i>	Creates a block (range) of IQNs, and enters organization IQN pool block mode. You must specify the base suffix, the starting suffix number, and the ending suffix number. The resulting IQN pool members are of the form <i>prefix:suffix:number</i> . The suffix can be up to 64 characters. Note An IQN pool can contain more than one IQN block. To create multiple blocks, enter multiple create block commands from organization IQN pool mode.

	Command or Action	Purpose
Step 7	UCS-A /org/iqn-pool/block # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to create an IQN pool named pool4, provide a description for the pool, specify a prefix and a block of suffixes to be used for the pool, and commit the transaction:

```
UCS-A# scope org /
UCS-A /org # create iqn-pool pool4
UCS-A /org/iqn-pool* # set iqn-prefix iqn.alpha.com
UCS-A /org/iqn-pool* # set descr "This is IQN pool 4"
UCS-A /org/iqn-pool* # create block beta 3 5
UCS-A /org/iqn-pool/block* # commit-buffer
UCS-A /org/iqn-pool/block #
```

What to Do Next

Include the IQN suffix pool in a service profile and/or template.

Adding a Block to an IQN 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 <i>/</i> as the <i>org-name</i> .
Step 2	UCS-A /org # scope iqn-pool <i>pool-name</i>	Enters organization IQN pool mode for the specified pool.
Step 3	UCS-A /org/iqn-pool # create block <i>suffix from to</i>	Creates a block (range) of IQN suffixes, and enters organization IQN pool block mode. You must specify the base suffix, the starting suffix number, and the ending suffix number. The resulting IQN pool members are of the form <i>prefix:suffix:number</i> . Note An IQN pool can contain more than one IQN block. To create multiple blocks, enter multiple create block commands from organization IQN pool mode.
Step 4	UCS-A /org/iqn-pool/block # commit-buffer	Commits the transaction to the system configuration.
Step 5	UCS-A /org/iqn-pool/block # exit	(Optional) Returns to organization IQN pool mode.
Step 6	UCS-A /org/iqn-pool # show block	(Optional) Displays the blocks of suffixes.

This example shows how to add a block of IQN suffixes to an IQN pool named pool4 and commit the transaction:

```
UCS-A# scope org /
UCS-A /org # scope iqn-pool pool4
UCS-A /org/iqn-pool # create block beta 3 5
UCS-A /org/iqn-pool/block* # commit-buffer
UCS-A /org/iqn-pool/block # exit
UCS-A /org/iqn-pool # show block
Block of IQN Names:
  Suffix      From To
  -----
  beta              3  5

UCS-A /org/iqn-pool #
```

Deleting a Block from an IQN Pool

If you delete an address block from a pool, Cisco UCS Manager does not reallocate any addresses in that block that have been assigned to vNICs or vHBAs. All assigned addresses from a deleted block remain with the vNIC or vHBA to which they are assigned until one of the following occurs:

- The associated service profiles are deleted.
- The vNIC or vHBA to which the address is assigned is deleted.
- The vNIC or vHBA is assigned to a different 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 iqn-pool <i>pool-name</i>	Enters organization IQN pool mode for the specified pool.
Step 3	UCS-A /org/iqn-pool # delete block <i>suffix from to</i>	Deletes a block (range) of IQNs. You must specify the base suffix and the first and last numbers in the block to be deleted.
Step 4	UCS-A /org/iqn-pool # commit-buffer	Commits the transaction to the system configuration.

This example shows how to delete a block of suffixes from an IQN pool named pool4 and commit the transaction:

```
UCS-A# scope org /
UCS-A /org # scope iqn-pool pool4
UCS-A /org/iqn-pool # delete block beta 0 12
UCS-A /org/iqn-pool* # commit-buffer
UCS-A /org/iqn-pool #
```

Deleting an IQN Pool

If you delete a pool, Cisco UCS Manager does not reallocate any addresses from that pool that have been assigned to vNICs or vHBAs. All assigned addresses from a deleted pool remain with the vNIC or vHBA to which they are assigned until one of the following occurs:

- The associated service profiles are deleted.
- The vNIC or vHBA to which the address is assigned is deleted.
- The vNIC or vHBA is assigned to a different 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, enter / as the <i>org-name</i> .
Step 2	UCS-A /org # delete iqn-pool <i>pool-name</i>	Deletes the specified IQN pool.
Step 3	UCS-A /org # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to delete the IQN pool named pool4 and commit the transaction:

```
UCS-A# scope org /
UCS-A /org # delete iqn-pool pool4
UCS-A /org* # commit-buffer
UCS-A /org #
```

Viewing IQN Pool Usage

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, enter / as the <i>org-name</i> .
Step 2	UCS-A /org # scope iqn-pool <i>pool-name</i>	Enters organization IQN pool mode for the specified pool.
Step 3	UCS-A /org/iqn-pool # show pooled	Displays the assignments of the IQN block members.

The following example shows how to display the assignments of suffixes in the IQN pool named pool4:

```
UCS-A# scope org /
UCS-A /org # scope iqn-pool pool4
UCS-A /org/iqn-pool # show pooled
Pooled:
  Name           Assigned Assigned To Dn
  -----
  beta:3        No
  beta:4        No
  beta:5        No

UCS-A /org/iqn-pool #
```

Creating an iSCSI Static Target

You can create a static target.

Before You Begin

You have already created an iSCSI vNIC.

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 service-profile <i>profile-name</i>	Enters service profile organization mode for the service profile to which you want to add an iSCSI target.
Step 3	UCS-A /org/service-profile # scope iscsi-boot	Enters the mode for configuring iSCSI boot parameters.
Step 4	UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi <i>iscsi-vnic-name</i>	Enters the iSCSI vNIC mode for the specified vNIC.
Step 5	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # create static-target-if {1 2}	Creates a static target for the iSCSI vNIC and assigns a priority level to it. Valid priority levels are 1 or 2.
Step 6	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if # set name <i>name</i>	A regular expression that defines the iSCSI Qualified Name (IQN) or Extended Unique Identifier (EUI) name of the iSCSI target. You can enter any alphanumeric characters as well as the following special characters: <ul style="list-style-type: none"> • . (period) • : (colon) • - (dash) <p>Important This name must be properly formatted according to standard IQN or EUI guidelines. The following examples show properly formatted iSCSI target names:</p>

	Command or Action	Purpose
		<ul style="list-style-type: none"> • iqn.2001-04.com.example • iqn.2001-04.com.example:storage.diskarrays-sm • iqn.2001-04.com.example:storage.tape1.sy • iqn.2001-04.com.example:storage.disk2.sy • eui.02004567A425678D
Step 7	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if # set port <i>port-num</i>	The port associated with the iSCSI target. Enter an integer between 1 and 65535. The default
Step 8	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if # set auth-name <i>auth-profile</i>	(Optional) If you need the target to authenticate itself and have an authentication profile, you need to specify the authentication profile. The name of the associated iSCSI authentication
Step 9	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if # set ipaddress <i>ipv4-address</i>	The IPv4 address assigned to the iSCSI target.
Step 10	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if # create lun	Creates the LUN that corresponds to the location of the interface.
Step 11	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if/lun* # set id <i>id-number</i>	Specifies the target LUN id. Valid values are from 1 to 65535.
Step 12	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if/lun* # exit	Exits the current configuration mode.
Step 13	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if # exit	Exits the current configuration mode.
Step 14	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # commit-buffer	Commits the transaction to the system configuration.
Step 15	Repeat steps 5 through 14 to create a second static target.	(Optional)

The following example shows how to create two iSCSI static target interfaces and commit the transaction:

```
UCS-A # scope org test
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # scope iscsi-boot
UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi iSCSI1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # create static-target-if 1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if* # set name statictarget1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if* # set port 3260
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if* # set auth-name
authprofile1
```

```

UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if* # set ip-address
192.168.10.10
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if* # create lun
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if/lun* # set id 1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if/lun* # exit
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if* # exit
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # commit-buffer
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # create static-target-if 2
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if* # set ipaddress
192.168.10.11
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if* # set name statictarget2
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if* # set port 3260
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if* # set auth-name
authprofile1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if* # create lun
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if/lun* # set id 1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if/lun* # exit
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/static-target-if* # exit
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # commit-buffer

```

What to Do Next

To configure a second iSCSI device, repeat the steps for creating an iSCSI vNIC, initiator, and target.

Deleting an iSCSI Static Target

You can delete an iSCSI static target. However, you must have at least one iSCSI static target remaining after you delete one. Therefore, you must have two iSCSI static targets in order to delete one of them.



Note

If you have two iSCSI targets and you delete the first priority target, the second priority target becomes the first priority target, although the Cisco UCS Manager still shows it as the second priority target.

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 service-profile <i>profile-name</i>	Enters service profile organization mode for the service profile to which you want to add an iSCSI target.
Step 3	UCS-A /org/service-profile # scope iscsi-boot	Enters the mode for configuring iSCSI boot parameters.
Step 4	UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi <i>iscsi-vnic-name</i>	Enters the iSCSI vNIC mode for the specified vNIC name.
Step 5	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # delete static-target-if	Deletes the static target for the iSCSI vNIC.

	Command or Action	Purpose
Step 6	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to delete an iSCSI static target and commit the transaction:

```
UCS-A # scope org test
UCS-A /org # scope service-profile sample
UCS-A /org # scope iscsi-boot
UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi trial
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # delete static-target-if 1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # commit-buffer
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi #
```

Creating an iSCSI Auto Target

You can create an iSCSI auto target with or without the vendor IDs.

Before You Begin

These prerequisites must be met before creating iSCSI auto target:

- You have already created an iSCSI vNIC in a service profile.
- You have considered the prerequisites for the VIC that you are using. For more information, see [iSCSI Boot Guidelines and Prerequisites, on page 7](#)

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 service-profile <i>profile-name</i>	Enters service profile organization mode for the service profile that you want to add an iSCSI target interface to.
Step 3	UCS-A /org # scope iscsi-boot Example:	Enters the mode for configuring iSCSI boot parameters.
Step 4	UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi <i>iscsi-vnic-name</i>	Enters iSCSI vNIC service profile organization mode for the specified vNIC name.
Step 5	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/ # create auto-target-if	Creates an auto target for the iSCSI vNIC. If you plan to use an auto target without the vendor ID, you must configure an

	Command or Action	Purpose
		initiator name. For more information, see Creating an iSCSI vNIC in a Service Profile, on page 19 .
Step 6	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/auto-target-if* # set dhcp-vendor-id <i>vendor-id</i>	(Optional) Sets a vendor ID for the auto target. The vendor ID can be up to 32 alphanumeric characters.
Step 7	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/auto-target-if* # exit	Exists the current configuration mode.
Step 8	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to create an iSCSI auto target *without* a vendor ID and commit the transaction:

```
UCS-A # scope org
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # scope iscsi-boot
UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi iSCSI1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # create auto-target-if
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/auto-target-if* # exit
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # commit-buffer
```

The following example shows how to create an iSCSI auto target *with* a vendor ID and commit the transaction:

```
UCS-A # scope org
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # scope iscsi-boot
UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi iSCSI1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # create auto-target-if
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/auto-target-if* # set dhcp-vendor-id
iSCSI_Vendor
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi/auto-target-if* # exit
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # commit-buffer
```

What to Do Next

To configure a second iSCSI device, repeat the steps for creating an iSCSI vNIC, initiator, and target.

Deleting an iSCSI Auto Target

You can delete an auto target only if you have a static target set.

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 service-profile <i>profile-name</i>	Enters the service profile mode for the service profile to which you want to add an iSCSI target.
Step 3	UCS-A /org/service-profile # scope iscsi-boot	Enters the mode for configuring iSCSI boot parameters.
Step 4	UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi <i>iscsi-vnic-name</i>	Enters the iSCSI vNIC mode for the specified vNIC name.
Step 5	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # delete auto-target-if	Deletes the auto target.
Step 6	UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # commit-buffer	Commits the transaction to the system configuration.

The following example shows how to delete an iSCSI auto target and commit the transaction:

```
UCS-A # scope org test
UCS-A /org # scope service-profile accounting
UCS-A /org/service-profile # scope iscsi-boot
UCS-A /org/service-profile/iscsi-boot # scope vnic-iscsi iSCSI1
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # delete auto-target-if
UCS-A /org/service-profile/iscsi-boot/vnic-iscsi # commit-buffer
```

Verifying iSCSI Boot

Use the KVM console to view the boot up messages as the adapter is booting. For information on how to access the KVM console, see the *Starting the KVM Console* chapter.

This step can only be performed using the Cisco UCS Manager GUI. For more information, see the *Starting the KVM Console* chapter in the *UCS Manager GUI Configuration Guide*.

- For the Cisco UCS M51KR-B Broadcom BCM57711, the following message appears:
Logging in the 1st iSCSI Target.... Succeeded.
- For the Cisco UCS M81KR Virtual Interface Card, the following message appears:
Option ROM installed successfully.

LAN Boot

You can configure a boot policy to boot one or more servers from a centralized provisioning server on the LAN. A LAN (or PXE) boot is frequently used to install operating systems on a server from that LAN server.

You can add more than one type of boot device to a LAN boot policy. For example, you could add a local disk or virtual media boot as a secondary boot device.

Configuring a LAN Boot for a Boot Policy

Before You Begin

Create a boot policy to contain the LAN boot configuration.

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 boot-policy <i>policy-name</i>	Enters organization boot policy mode for the specified boot policy.
Step 3	UCS-A /org/boot-policy # create lan	Creates a LAN boot for the boot policy and enters organization boot policy LAN mode.
Step 4	UCS-A /org/boot-policy/lan # set order {1 2 3 4}	Specifies the boot order for the LAN boot.
Step 5	UCS-A /org/boot-policy/lan # create path {primary secondary}	Creates a primary or secondary LAN boot path and enters organization boot policy LAN path mode.
Step 6	UCS-A /org/boot-policy/lan/path # set vnic <i>vnic-name</i>	Specifies the vNIC to use for the LAN path to the boot image.
Step 7	UCS-A /org/boot-policy/lan/path # commit-buffer	Commits the transaction to the system configuration.

The following example enters the boot policy named lab2-boot-policy, creates a LAN boot for the policy, sets the boot order to 2, creates primary and secondary paths using the vNICs named vNIC1 and vNIC2, and commits the transaction:

```
UCS-A# scope org /
UCS-A /org* # scope boot-policy lab2-boot-policy
UCS-A /org/boot-policy* # create lan
UCS-A /org/boot-policy/lan* # set order 2
UCS-A /org/boot-policy/lan* # create path primary
UCS-A /org/boot-policy/lan/path* # set vnic vNIC1
UCS-A /org/boot-policy/lan/path* # exit
UCS-A /org/boot-policy/lan* # create path secondary
UCS-A /org/boot-policy/lan/path* # set vnic vNIC2
```

```
UCS-A /org/boot-policy/lan/path* # commit-buffer
UCS-A /org/boot-policy/lan/path #
```

What to Do Next

Include the boot policy in a service profile and/or template.

Local Disk Boot

If a server has a local drive or bootable USB device, you can configure a boot policy to boot the server from that device with a local disk boot policy.



Note

Cisco UCS Manager does not differentiate between the types of local boot devices. If an operating system has been installed on more than one local drive or on an internal USB drive (eUSB), you cannot specify which of these devices the server should use as the boot drive.

Configuring a Local Disk Boot for a Boot Policy

You can also create a local boot policy that is restricted to a service profile or service profile template. However, we recommend that you create a global boot policy that can be included in multiple service profiles or service profile templates.

You can add more than one type of boot device to a boot policy. For example, you could add a virtual media boot as a secondary boot device.

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 boot-policy <i>policy-name</i>	Enters organization boot policy mode for the specified boot policy.
Step 3	UCS-A /org/boot-policy # create storage	Creates a storage boot for the boot policy and enters organization boot policy storage mode.
Step 4	UCS-A /org/boot-policy/storage # create local	Creates a local storage location. When using the enhanced boot order on Cisco UCS M3 servers, the boot order that you define is used. For standard boot mode, the use of the terms primary or secondary boot devices does not imply a boot order. The effective order of boot devices within the same device class is determined by PCIe bus scan order.
Step 5	UCS-A /org/boot-policy/storage # commit-buffer	Commits the transaction to the system configuration.

The following example enters the boot policy named lab1-boot-policy, creates a local boot for the policy, and commits the transaction:

```
UCS-A# scope org /
UCS-A /org* # scope boot-policy lab1-boot-policy
UCS-A /org/boot-policy* # create storage
UCS-A /org/boot-policy/storage* # create local
UCS-A /org/boot-policy/storage* # commit-buffer
UCS-A /org/boot-policy/storage #
```

What to Do Next

Include the boot policy in a service profile and/or template.

Virtual Media Boot

You can configure a boot policy to boot one or more servers from a virtual media device that is accessible from the server. A virtual media device mimics the insertion of a physical CD-ROM disk (read-only) or floppy disk (read-write) into a server. This type of server boot is typically used to manually install operating systems on a server.

Configuring a Virtual Media Boot for a Boot Policy



Note

Virtual Media requires the USB to be enabled. If you modify the BIOS settings that affect the USB functionality, you also affect the Virtual Media. Therefore, we recommend that you leave the following USB BIOS defaults for best performance:

- Make Device Non Bootable—set to **disabled**
- USB Idle Power Optimizing Setting—set to **high-performance**

Before You Begin

Create a boot policy to contain the virtual media boot configuration.

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 <i>/</i> as the <i>org-name</i> .
Step 2	UCS-A /org # scope boot-policy <i>policy-name</i>	Enters organization boot policy mode for the specified boot policy.
Step 3	UCS-A /org/boot-policy # create virtual-media { read-only read-write }	Creates a virtual media boot for the boot policy, specifies whether the virtual media is has read-only

	Command or Action	Purpose
		or read-write privileges, and enters organization boot policy virtual media mode.
Step 4	UCS-A /org/boot-policy/virtual-media # set order {1 2 3 4}	Sets the boot order for the virtual-media boot.
Step 5	UCS-A /org/boot-policy/virtual-media # commit-buffer	Commits the transaction to the system configuration.

The following example enters the boot policy named lab3-boot-policy, creates a virtual media boot with read-only privileges for the policy, sets the boot order to 3, and commits the transaction:

```
UCS-A# scope org /
UCS-A /org* # scope boot-policy lab3-boot-policy
UCS-A /org/boot-policy* # create virtual-media read-only
UCS-A /org/boot-policy/virtual-media* # set order 3
UCS-A /org/boot-policy/virtual-media* # commit-buffer
```

What to Do Next

Include the boot policy in a service profile and/or template.

Deleting a Boot Policy

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 # delete boot-policy <i>policy-name</i>	Deletes the specified boot policy.
Step 3	UCS-A /org # commit-buffer	Commits the transaction to the system configuration.

The following example deletes the boot policy named boot-policy-LAN and commits the transaction:

```
UCS-A# scope org /
UCS-A /org # delete boot-policy boot-policy-LAN
UCS-A /org* # commit-buffer
UCS-A /org #
```

