



# **Cisco UCS C-Series rack server deployment procedure**

**FlexPod**

NetApp  
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# Cisco UCS C-Series rack server deployment procedure

The following section provides a detailed procedure for configuring a Cisco UCS C-Series standalone rack server for use in the FlexPod Express configuration.

## Perform initial Cisco UCS C-Series standalone server setup for Cisco Integrated Management Server

Complete these steps for the initial setup of the CIMC interface for Cisco UCS C-Series standalone servers.

The following table lists the information needed to configure CIMC for each Cisco UCS C-Series standalone server.

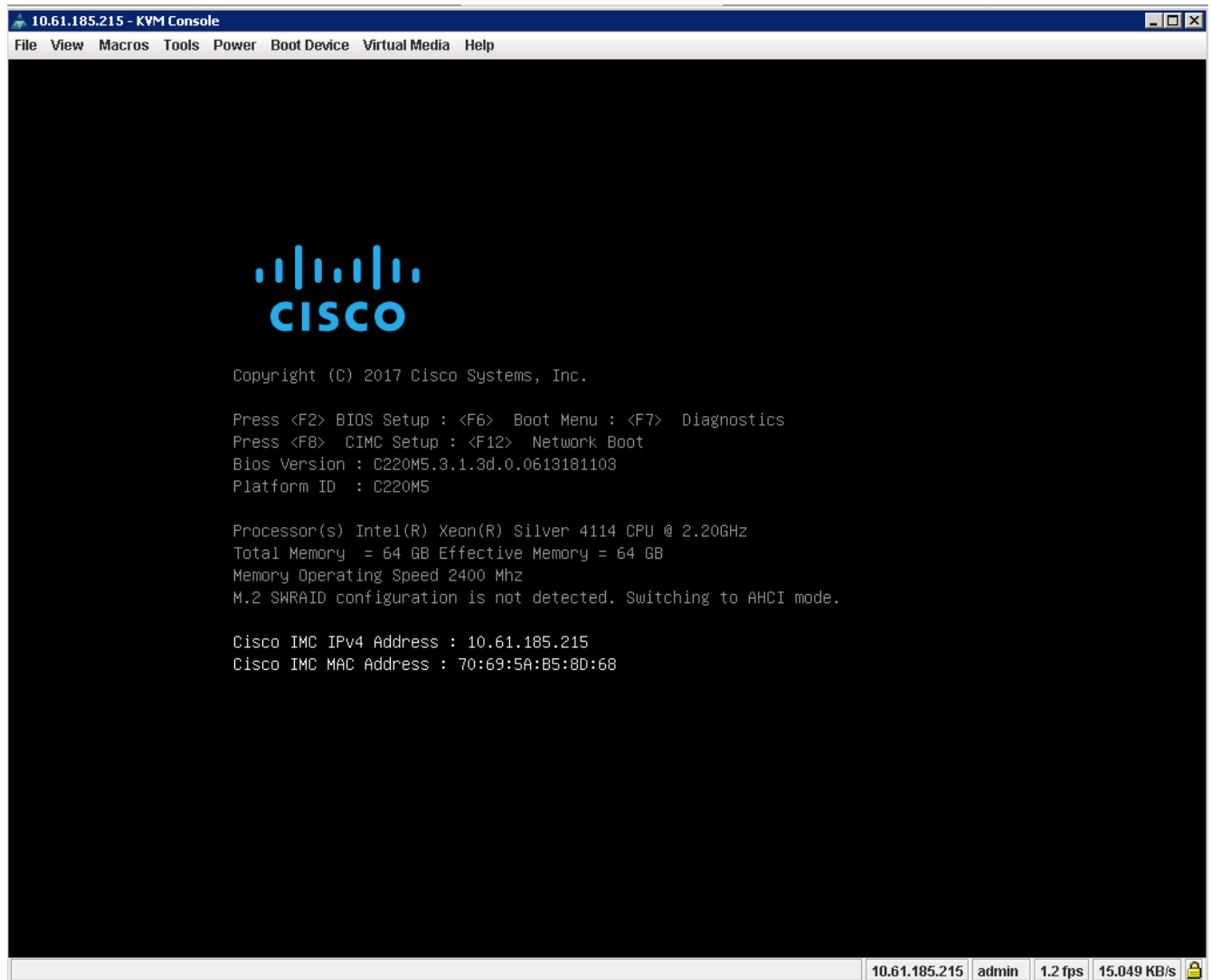
Detail	Detail value
CIMC IP address	<<cimc_ip>>
CIMC subnet mask	<<cimc_netmask>>
CIMC default gateway	<<cimc_gateway>>



The CIMC version used in this validation is CIMC 3.1.3(g).

### All servers

1. Attach the Cisco keyboard, video, and mouse (KVM) dongle (provided with the server) to the KVM port on the front of the server. Plug a VGA monitor and USB keyboard into the appropriate KVM dongle ports.
2. Power on the server and press F8 when prompted to enter the CIMC configuration.



3. In the CIMC configuration utility, set the following options:
- Network interface card (NIC) mode:
    - Dedicated [X]
  - IP (Basic):
    - IPV4: [X]
    - DHCP enabled: [ ]
    - CIMC IP: <<cimc\_ip>>
    - Prefix/Subnet: <<cimc\_netmask>>
    - Gateway: <<cimc\_gateway>>
  - VLAN (Advanced): Leave cleared to disable VLAN tagging.
    - NIC redundancy
    - None: [X]

```
Cisco IMC Configuration Utility Version 2.0 Cisco Systems, Inc.
*****
NIC Properties
NIC mode
Dedicated:      [X]          NIC redundancy
Shared LOM:     [ ]          None: [X]
Cisco Card:     [ ]          Active-standby: [ ]
Riser1:         [ ]          Active-active: [ ]
Riser2:         [ ]          VLAN (Advanced)
MLom:           [ ]          VLAN enabled: [ ]
Shared LOM Ext: [ ]          VLAN ID: 1
Priority: 0
IP (Basic)
IPv4: [X]          IPv6: [ ]
DHCP enabled [ ]
CIMC IP: 10.61.185.215
Prefix/Subnet: 255.255.255.0
Gateway: 10.61.185.1
Pref DNS Server: 0.0.0.0
Smart Access USB
Enabled [ ]
*****
<Up/Down>Selection <F10>Save <Space>Enable/Disable <F5>Refresh <ESC>Exit
<F1>Additional settings
```

4. Press F1 to see additional settings.

- Common properties:
  - Host name: <<esxi\_host\_name>>
  - Dynamic DNS: [ ]
  - Factory defaults: Leave cleared.
- Default user (basic):
  - Default password: <<admin\_password>>
  - Reenter password: <<admin\_password>>
  - Port properties: Use default values.
  - Port profiles: Leave cleared.

```

Cisco IMC Configuration Utility Version 2.0  Cisco Systems, Inc.
*****
Common Properties
  Hostname:      CIMC-Tiger-02
  Dynamic DNS:   [X]
  DDNS Domain:
FactoryDefaults
  Factory Default:      [ ]
Default User(Basic)
  Default password:      -
  Reenter password:
Port Properties
  Auto Negotiation:      [X]
                                Admin Mode      Operation Mode
  Speed[1000/100/10Mbps]:      Auto              1000
  Duplex mode[half/full]:      Auto              full
Port Profiles
  Reset:                  [ ]
  Name:
*****
<Up/Down>Selection  <F10>Save  <Space>Enable/Disable  <F5>Refresh  <ESC>Exit
<F2>PreviousPageettings

```

5. Press F10 to save the CIMC interface configuration.
6. After the configuration is saved, press Esc to exit.

## Configure Cisco UCS C-Series servers iSCSI boot

In this FlexPod Express configuration, the VIC1387 is used for iSCSI boot.

The following table lists the information needed to configure iSCSI boot.



Italicized font indicates variables that are unique for each ESXi host.

Detail	Detail value
ESXi host initiator A name	<<var_ucs_initiator_name_A>>
ESXi host iSCSI-A IP	<<var_esxi_host_iscsiA_ip>>
ESXi host iSCSI-A network mask	<<var_esxi_host_iscsiA_mask>>
ESXi host iSCSI A default gateway	<<var_esxi_host_iscsiA_gateway>>
ESXi host initiator B name	<<var_ucs_initiator_name_B>>
ESXi host iSCSI-B IP	<<var_esxi_host_iscsiB_ip>>
ESXi host iSCSI-B network mask	<<var_esxi_host_iscsiB_mask>>
ESXi host iSCSI-B gateway	<<var_esxi_host_iscsiB_gateway>>

Detail	Detail value
IP address iscsi_lif01a	
IP address iscsi_lif02a	
IP address iscsi_lif01b	
IP address iscsi_lif02b	
Infra_SVM IQN	

## Boot order configuration

To set the boot order configuration, complete the following steps:

1. From the CIMC interface browser window, click the Server tab and select BIOS.
2. Click Configure Boot Order and then click OK.

3. Configure the following devices by clicking the device under Add Boot Device, and going to the Advanced tab.
  - Add Virtual Media
    - Name: KVM-CD-DVD
    - Subtype: KVM MAPPED DVD
    - State: Enabled
    - Order: 1
  - Add iSCSI Boot.
    - Name: iSCSI-A

- State: Enabled
- Order: 2
- Slot: MLOM
- Port: 0
- Click Add iSCSI Boot.
  - Name: iSCSI-B
  - State: Enabled
  - Order: 3
  - Slot: MLOM
  - Port: 1

4. Click Add Device.

5. Click Save Changes and then click Close.

Configure Boot Order

Configured Boot Level: Advanced

Basic Advanced

Add Boot Device

- Add Local HDD
- Add PXE Boot
- Add SAN Boot
- Add iSCSI Boot
- Add USB
- Add Virtual Media
- Add PCHStorage
- Add UEFISHELL
- Add SD Card
- Add NVME
- Add Local CDD

Advanced Boot Order Configuration

Selected 1 / Total 3

	Name	Type	Order	State
<input checked="" type="checkbox"/>	KVM-MAPPED-DVD	VMEDIA	1	Enabled
<input type="checkbox"/>	iSCSI-A	ISCSI	2	Enabled
<input type="checkbox"/>	iSCSI-B	ISCSI	3	Enabled

Save Changes Reset Values Close

6. Reboot the server to boot with your new boot order.

## Disable RAID controller (if present)

Complete the following steps if your C-Series server contains a RAID controller. A RAID controller is not needed in the boot from SAN configuration. Optionally, you can also physically remove the RAID controller from the server.

1. Click BIOS on the left navigation pane in CIMC.
2. Select Configure BIOS.
3. Scroll down to PCIe Slot:HBA Option ROM.
4. If the value is not already disabled, set it to disabled.



BIOS	Remote Management	Troubleshooting	Power Policies	PID Catalog	
I/O	Server Management	Security	Processor	Memory	Power/Performance

Note: Default values are shown in bold.

Reboot Host Immediately: ☒

Intel VT for directed IO:	Enabled
Intel VTD ATS support:	Enabled
LOM Port 1 OptionRom:	Enabled
Pcie Slot 1 OptionRom:	Disabled
MLOM OptionRom:	Enabled
Front NVME 1 OptionRom:	Enabled
MRAID Link Speed:	Auto
PCIe Slot 1 Link Speed:	Auto
Front NVME 1 Link Speed:	Auto
VGA Priority:	Onboard
P-SATA OptionROM:	LSI SW RAID
USB Port Rear:	Enabled
USB Port Internal:	Enabled
IPv6 PXE Support:	Disabled

Legacy USB Support:	Enabled
Intel VTD coherency support:	Disabled
All Onboard LOM Ports:	Enabled
LOM Port 2 OptionRom:	Enabled
Pcie Slot 2 OptionRom:	Disabled
MRAID OptionRom:	Enabled
Front NVME 2 OptionRom:	Enabled
MLOM Link Speed:	Auto
PCIe Slot 2 Link Speed:	Auto
Front NVME 2 Link Speed:	Auto
M.2 SATA OptionROM:	AHCI
USB Port Front:	Enabled
USB Port KVM:	Enabled
USB Port:M.2 Storage:	Enabled

## Configure Cisco VIC1387 for iSCSI boot

The following configuration steps are for the Cisco VIC 1387 for iSCSI boot.

### Create iSCSI vNICs

1. Click Add to create a vNIC.
2. In the Add vNIC section, enter the following settings:
  - Name: iSCSI-vNIC-A
  - MTU: 9000
  - Default VLAN: <<var\_iscsi\_vlan\_a>>
  - VLAN Mode: TRUNK
  - Enable PXE boot: Check

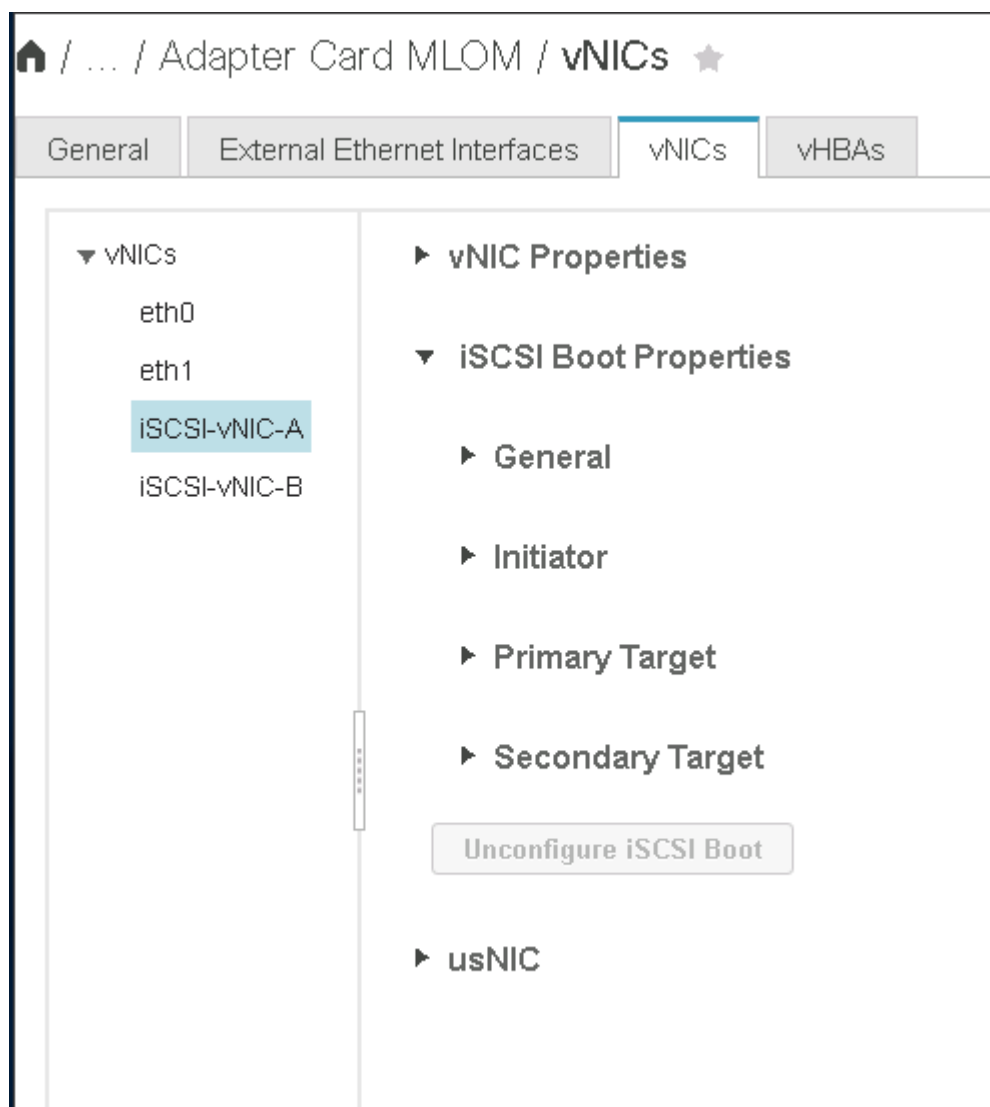
#### ▼ vNIC Properties

##### ▼ General

Name:	iSCSI-vNIC-A
CDN:	VIC-MLOM-iSCSI-vNIC-A
MTU:	9000 (1500 - 9000)
Uplink Port:	0
MAC Address:	<input type="radio"/> Auto <input checked="" type="radio"/> 70:69:5A:C0:98:ED
Class of Service:	0 (0 - 6)
Trust Host CoS:	<input checked="" type="checkbox"/>
PCI Order:	4 (0 - 5)
Default VLAN:	<input type="radio"/> None <input checked="" type="radio"/> 3439

VLAN Mode:	Trunk
Rate Limit:	<input checked="" type="radio"/> OFF <input type="radio"/> <input type="text"/> (1 - 1000)
Channel Number:	N/A (1 - 1000)
PCI Link:	0 (0 - 1)
Enable NVGRE:	<input type="checkbox"/>
Enable VXLAN:	<input type="checkbox"/>
Advanced Filter:	<input type="checkbox"/>
Port Profile:	N/A
Enable PXE Boot:	<input checked="" type="checkbox"/>
Enable VMQ:	<input type="checkbox"/>
Enable aRFS:	<input type="checkbox"/>
Enable Uplink Failover:	<input type="checkbox"/>
Failback Timeout:	N/A (0 - 600)

3. Click Add vNIC and then click OK.
4. Repeat the process to add a second vNIC.
  - a. Name the vNIC iSCSI-vNIC-B.
  - b. Enter <<var\_iscsi\_vlan\_b>> as the VLAN.
  - c. Set the uplink port to 1.
5. Select the vNIC iSCSI-vNIC-A on the left.



6. Under iSCSI Boot Properties, enter the initiator details:
  - Name: <<var\_ucsa\_initiator\_name\_a>>
  - IP address: <<var\_esxi\_hostA\_iscsiA\_ip>>
  - Subnet mask: <<var\_esxi\_hostA\_iscsiA\_mask>>
  - Gateway: <<var\_esxi\_hostA\_iscsiA\_gateway>>

vNICs
eth0
eth1
ISCSI-v
ISCSI-v

### ISCSI Boot Properties

General

Initiator

Name:  (0 - 233) chars
Initiator Priority:

IP Address: 
Secondary DNS:

Subnet Mask: 
TCP Timeout:

Gateway: 
CHAP Name:

Primary DNS: 
CHAP Secret:

Primary Target

Secondary Target

7. Enter the primary target details.

- Name: IQN number of infra-SVM
- IP address: IP address of `iscsi_lif01a`
- Boot LUN: 0

8. Enter the secondary target details.

- Name: IQN number of infra-SVM
- IP address: IP address of `iscsi_lif02a`
- Boot LUN: 0

You can obtain the storage IQN number by running the `vserver iscsi show` command.



Be sure to record the IQN names for each vNIC. You need them for a later step.

General
External Ethernet Interfaces
vNICs
vHBAs

vNICs
eth0
eth1
iSCSI-v
iSCSI-v

Initiator

Primary Target

Name: iqn.1992-08.com.netapp:sn.7e560f73a51 (0 - 233) chars
IP Address: 172.21.246.16
TCP Port: 3260
Boot LUN: 0
CHAP Name:
CHAP Secret:

Secondary Target

Name: iqn.1992-08.com.netapp:sn.7e560f73a51 (0 - 233) chars
IP Address: 172.21.246.18
TCP Port: 3260
Boot LUN: 0
CHAP Name:
CHAP Secret:

Unconfigure iSCSI Boot

9. Click Configure iSCSI.
10. Select the vNIC iSCSI-vNIC- B and click the iSCSI Boot button located on the top of the Host Ethernet Interfaces section.
11. Repeat the process to configure iSCSI-vNIC-B.
12. Enter the initiator details.
  - Name: <<var\_ucsa\_initiator\_name\_b>>
  - IP address: <<var\_esxi\_hostb\_iscsib\_ip>>
  - Subnet mask: <<var\_esxi\_hostb\_iscsib\_mask>>
  - Gateway: <<var\_esxi\_hostb\_iscsib\_gateway>>
13. Enter the primary target details.
  - Name: IQN number of infra-SVM
  - IP address: IP address of iscsi\_lif01b
  - Boot LUN: 0
14. Enter the secondary target details.
  - Name: IQN number of infra-SVM
  - IP address: IP address of iscsi\_lif02b
  - Boot LUN: 0

You can obtain the storage IQN number by using the `vserver iscsi show` command.



Be sure to record the IQN names for each vNIC. You need them for a later step.

15. Click Configure iSCSI.
16. Repeat this process to configure iSCSI boot for Cisco UCS server B.

# Configure vNICs for ESXi

1. From the CIMC interface browser window, click Inventory and then click Cisco VIC adapters on the right pane.
2. Under Adapter Cards, select Cisco UCS VIC 1387 and then select the vNICs underneath.

Home / ... / Adapter Card

MLOM / vNICs ★

Refresh | Host Power | Launch KVM | Ping | CIMC Reboot | Locat

General | External Ethernet Interfaces | vNICs | vHBAs

▼ vNICs

eth0

eth1

iSCSI-v

iSCSI-v

Host Ethernet Interfaces

Selected 0

Add vNIC | Clone vNIC | Delete vNICs

	Name	CDN	MAC Address	MTU	usNIC	Uplink Port	CoS	VLAN	VLAN Mode
<input type="checkbox"/>	eth0	VIC-MLO...	70:69:5A:C0:98:49	1500	0	0	0	NONE	TRUNK
<input type="checkbox"/>	eth1	VIC-MLO...	70:69:5A:C0:98:4A	1500	0	1	0	NONE	TRUNK
<input type="checkbox"/>	iSCSI-v...	VIC-MLO...	70:69:5A:C0:98:4D	9000	0	0	0	3439	TRUNK
<input type="checkbox"/>	iSCSI-v...	VIC-MLO...	70:69:5A:C0:98:4E	9000	0	1	0	3440	TRUNK

3. Select eth0 and click Properties.
4. Set the MTU to 9000. Click Save Changes.

GeneralExternal Ethernet InterfacesvNICsvHBAs

▼ vNICs

eth0

eth1

ISCSI-v

ISCSI-v

Name:

eth0

CDN:

VIC-MLOM-eth0

MTU:

9000

(1500 - 9000)

Uplink Port:

0

MAC Address:

☐ Auto
 ☒ 70:69:5A:C0:98:49

Class of Service:

0

(0 - 6)

Trust Host CoS:

☐

PCI Order:

0

(0 - 5)

Default VLAN:

☒ None
 ☐

?

5. Repeat steps 3 and 4 for eth1, verifying that the uplink port is set to 1 for eth1.

[/ ... / Adapter Card MLOM / vNICs](#) ★

GeneralExternal Ethernet InterfacesvNICsvHBAs

▼ vNICs

eth0

eth1

ISCSI-vNIC-A

ISCSI-vNIC-B

Host Ethernet Interfaces

Add vNICClone vNICDelete vNICs

	Name	CDN	MAC Address	MTU	usNIC	Uplink Port
<input type="checkbox"/>	eth0	VIC-MLO...	70:69:5A:C0:98:49	9000	0	0
<input type="checkbox"/>	eth1	VIC-MLO...	70:69:5A:C0:98:4A	9000	0	1
<input type="checkbox"/>	iSCSI-v...	VIC-MLO...	70:69:5A:C0:98:4D	9000	0	0
<input type="checkbox"/>	iSCSI-v...	VIC-MLO...	70:69:5A:C0:98:4E	9000	0	1



This procedure must be repeated for each initial Cisco UCS Server node and each additional Cisco UCS Server node added to the environment.

[Next: NetApp AFF Storage Deployment Procedure \(Part 2\)](#)

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