

Troubleshooting Boot from SAN in Intersight Managed Mode

Common issues and where to start your investigation

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TACDCN-2008



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- Introduction to Intersight
- Boot from SAN Issues
- Troubleshooting
- Solution
- Conclusion

What is Intersight Managed Mode Why should I use it?

- Cloud based solution
- Secure automatic backups
- Can host multiple domains
- Automatic log collection

https://go2.cisco.com/IMM Config



Acronyms

UCSM	Unified Compute System Manager
IMM	Intersight Managed Mode
SAN	Storage Area Network
BFS	Boot from SAN
VSAN	Virtual Storage Area Network
WWPN	Worldwide Port Names
(v)HBA	(virtual) Host Bus Adapter

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Similarities and differences between UCSM and IMM

Pla

- Policies and Service Profile configurations
 - Boot Order Policy
 - Port Policy
 - SAN Connectivity Policy
 - VSAN Policy/ID



ers	Q Search			
form Type	O Replication Network Configuration	O External iSCSI Storage	O Link Aggregation	() ѕмтр
All	Backup Configuration	O FC Zone	O Link Control	O SNMP
UCS Server	Adapter Configuration	Fibre Channel Adapter	O Local User	O ssh
UCS Domain	O Add-ons	O Fibre Channel Network	O Multicast Policy	O Storage
UCS Chassis	O Auto Support	O Fibre Channel QoS	O Network CIDR	O Storage Configuration
HyperFlex Cluster	O BIOS	O Firmware	O Network Configuration	O Switch Control
Kubernetes Cluster	O Boot Order	Flow Control	O Network Connectivity	◯ Syslog
	O Certificate Management		O Node IP Ranges	O System QoS
	O Container Runtime	O Http Proxy Policy	O Node OS Configuration	O Thermal
	O Device Connector	O IMC Access		O Trusted Certificate Authorities
	O DNS, NTP and Timezone	O IPMI Over LAN	O Persistent Memory	○ vCenter
	O Drive Security	O iSCSI Adapter	O Port	Virtual KVM
	O Ethernet Adapter	O iSCSI Boot	O Power	O Virtual Machine Infra Config
	C Ethernet Network	O iSCSI Static Target	O SAN Connectivity	O Virtual Machine Instance Type
	O Ethernet Network Control	O Kubernetes Version	SD Card	Virtual Media
	Ethernet Network Group	O LAN Connectivity	O Security	O VLAN
	C Ethernet QoS		O Serial Over LAN	() vsan

Configuring new boot from SAN policy

What we configure from Intersight

- VSAN ID & Policy
- Port Policy
- vHBA names

What is provided by SAN/storage teams

- Worldwide Port Names (WWPNs)
- LUN IDs

https://go2.cisco.com/BootFromSAN



Conf	lia	ura	tio	n
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Configured Boot Mode	Configured Boot Mode				
Unified Extensible Firmware Interface (UEFI)					
Enable Secure Boot					
Off					
 Boot Devices 					
🔼 SAN Boot					
Enable					
Yes					
Device Name					
vhbaAPrimary					
Туре					
SAN Boot					
Interface Name					
VIDU					
Slot					
Bootloader Description					
Pootloader Name					
-					
Bootloader Path					
-					
LUN					
1					
Target WWPN					
52:4A:93:76:35:A2:75:08					

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Questions



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I've configured boot from SAN...

- ...and I still can't see my targets
- Configured the VSAN Policy
- Configured Port Policy
- Created Service Profile
- Created Boot Order Policy

- Deployed and rebooted servers
- Server still booting to the shell

```
Cisco UEFI Interactive Shell v2.2
EDK II
UEFI v2.80 (American Megatrends, 0x00050016)
Mapping table
     BLK0: Alias(s):
         PciRoot(0x0)/Pci(0x1D,0x0)/Pci(0x0,0x0)/Scsi(0x0,0x0)
     BLK1: Alias(s):
         PciRoot(0x0)/Pci(0x1D,0x0)/Pci(0x0,0x0)/Scsi(0x1,0x0)
     BLK2: Alias(s):
         PciRoot(0x5)/Pci(0x2,0x0)/Pci(0x0,0x0)/NVMe(0x1,37-63-0D-00-81-EE-14-0
    BLK3: Alias(s):
          PciRoot(0x5)/Pci(0x3,0x0)/Pci(0x0,0x0)/NVMe(0x1,8E-61-0D-00-81-EE-14-0
    BLK4: Alias(s):
          PciRoot(0x5)/Pci(0x4,0x0)/Pci(0x0,0x0)/NVMe(0x1,CF-62-0D-00-81-EE-14-0
     BLK5: Alias(s):
         PciRoot(0x5)/Pci(0x5,0x0)/Pci(0x0,0x0)/NVMe(0x1,A4-62-0D-00-81-EE-14-0
Press ESC in 1 seconds to skip startup.nsh or any other key to continue.
Shell> _
```

Where to start?

• Single out a server

FI-A # connect adapter x/y/z -> (x = Chassis, y = Blade, z = Adapter)

Entering character mode Escape character is '^]'.

(none) login: dbgsh

adapter (top):2# attach-fls
adapter (fls):1# lunlist

lunlist

vnic : 16 lifid: 16

- FLOGI State : flogi est (fc_id 0x010303)
- PLOGI Sessions
- WWNN 58:cc:f0:98:49:62:0b:fa WWPN 58:cc:f0:98:49:62:0b:fa fc id 0x000000
- LUN's configured (SCSI Type, Version, Vendor, Serial No.) LUN ID : **0x00000000000000 access failure**
- REPORT LUNs Query Response
- WWNN 58:cc:f0:90:49:62:0b:fa WWPN 58:cc:f0:90:49:62:0b:fa fc_id 0x000000
- LUN's configured (SCSI Type, Version, Vendor, Serial No.) LUN ID : 0x00000000000000 access failure
- REPORT LUNs Query Response
- Nameserver Query Response

Missing queries

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Press <F2> Setup : <F6> Boot Menu : <F12> Network Boot Bios Version : X210M7.4.3.2C.0.0831230738 Platform ID : X210M7

Processor(s) Intel(R) Xeon(R) Gold 6454S | Loading Cisco VIC FC Driver Total Memory = 256 GB Effective Memory = 256 GB Memory Operating Speed 4800 Mhz

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Press <F2> Setup : <F6> Boot Menu : <F12> Network Boot Bios Version : X210M7.4.3.2c.0.0831230738 Platform ID : X210M7

Processor(s) Intel(R) Xeon(R) Gold 6454S

Total Memory = 256 GB Effective Memory = 256 GB Cisco VIC Fibre Channel Driver Version 2.2(1i) (C) 2013 Cisco Systems, Inc.

SAN	Storage	52:4a:93:76:35:a2:75:08	25.00	GI
SAN	Storage	52:4a:93:76:35:a2:75:09	25.00	GF

Where to start?

• Adapter logging in correctly:

FI-A # connect adapter x/y/z -> (x = Chassis, y = Blade, z = Adapter)

```
Entering character mode Escape character is '^]'.
```

(none) login: dbgsh

adapter (top):2# attach-fls
adapter (fls):1# lunlist

lunlist

vnic : 16 lifid: 16

- FLOGI State : flogi est (fc_id 0x010303)
- PLOGI Sessions
- WWNN 58:cc:f0:98:49:62:0b:fa WWPN 58:cc:f0:98:49:62:0b:fa fc id 0x600020
- LUN's configured (SCSI Type, Version, Vendor, Serial No.) LUN ID : **0x00000000000000**
- REPORT LUNs Query Response
- WWNN 58:cc:f0:90:49:62:0b:fa WWPN 58:cc:f0:90:49:62:0b:fa fc id 0x600020
- LUN's configured (SCSI Type, Version, Vendor, Serial No.) LUN ID : **0x0000000000000**
- REPORT LUNs Query Response
- Nameserver Query Response
- WWPN : 58:cc:f0:98:49:62:0b:fa

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Copyright (c) 2023 Cisco Systems, Inc.
Press <f2> Setup : <f6> Boot Menu : <f12> Network Boot Bios Version : X210M7.4.3.2c.0.0831230738 Platform ID : X210M7</f12></f6></f2>
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Cisco VIC Fibre Channel Driver Version 2.2(1i) (C) 2013 Cisco Systems, Inc.

SAN	Storage	52:4a:93:76:35:a2:75:08	25.00 GB
SAN	Storage	52:4a:93:76:35:a2:75:09	25.00 GB



I can see the storage array... ...but I can't install the OS using the .iso file

- Lunlist populates all fields, no failures seen
- Return to the Boot Policy
- Review virtual media configuration
 - CIMC mapped = using vMedia policy
 - KVM mapped = using KVM





					Enabled	ů ⁄	^
ſ	Sub-Type 🕕						
ι	None						
	None						
	CIMC MAPPED DVD						
	CIMC MAPPED HDD						
	KVM MAPPED DVD						
	KVM MAPPED HDD						oy
	KVM MAPPED FDD						
	#CiscoLive	TACDCN-2008	© 2024	Cisco and/or its affiliates. All rights reserved.	Cisco Public	12	

I can see the storage array...

- ...but after install server is still booting to shell
- Lunlist populates Nameserver Query Response
- LUN ID is correct
- FC_ID of array is identified correctly

- Bootloader Name
 - BOOTX64.EFI
- Bootloader Path
 - \EFI\BOOT\







Engaging TAC after troubleshooting The most efficient way to the quickest solution

- Provide as much logging as possible
 - Lunlist command outputs
 - \checkmark Other troubleshooting performed to the point of opening a TAC case
 - Automatic log uploads through Intersight
- Provide as much detail about the environment as possible
 New setup vs modifying existing setup?

https://go2.cisco.com/OpeningNewCase

VMware ESXi 7.0.3 (VMKernel Release Build 22348816)

Cisco Systems Inc UCSC-C240-M7SX

2 x Intel(R) Xeon(R) Gold 6448H 766.7 GiB Memory

To manage this host, go to: https:// (STATIC) https:// (STATIC)

(F2) Customize System/View Logs

KF12> Shut Down/Restart

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Questions



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Thank you



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