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**CAE UCS 1.4.1  
FC Switch Mode**



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# **1 Introduction**

This White Paper will guide the user through the configuration and verification of FC switch mode. It will cover creating TE ports to connect to a SAN fabric. Creating SAN port-channels and utilizing the active zoneset from a connected fabric. This document will also show how to run standalone with default-zone permit.

This will also cover configuration of direct attach FC and FCoE storage ports.

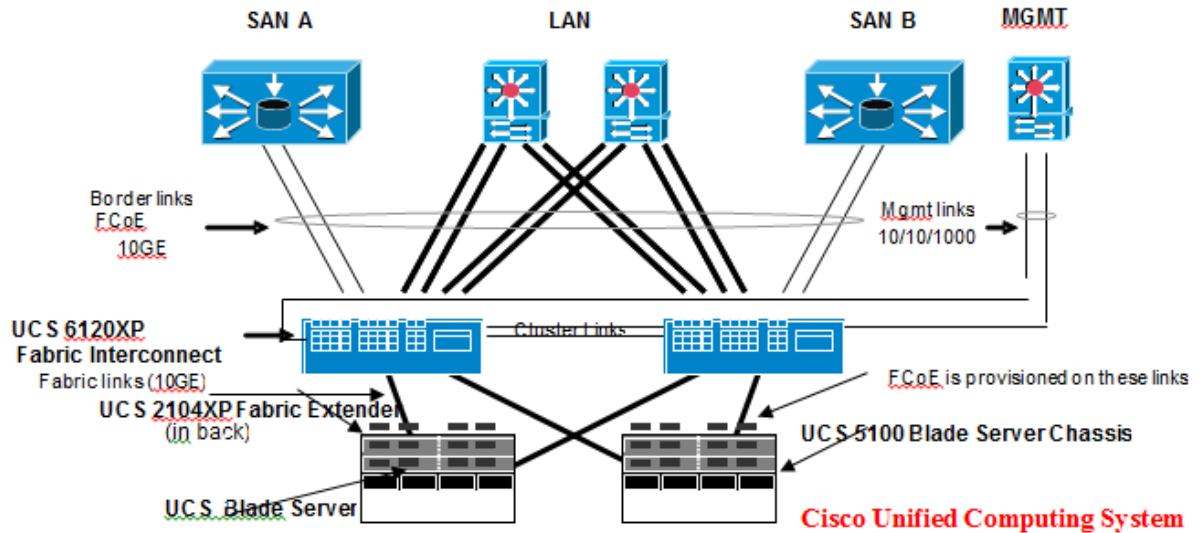
## **1.1 What Cisco Provides**

- Software
  - UCS 1.4.1 Image

## **1.2 What the Field Site Must Provide**

- Hardware Requirements
  - UCS System with FC modules
  - FC and FCoE Storage targets

## **1.3 Topology Used for this White Paper**



## 1.4 MDS Configuration for TE port

Configure MDS ports to connect to UCS ports.

1) Preparing the MDS for switch mode. The links between the MDS and UCS will be E-ports. We'll also configure trunking E-ports

```
interface fc4/11
  switchport rate-mode dedicated
  switchport mode E
  switchport trunk mode auto
  no shutdown
```

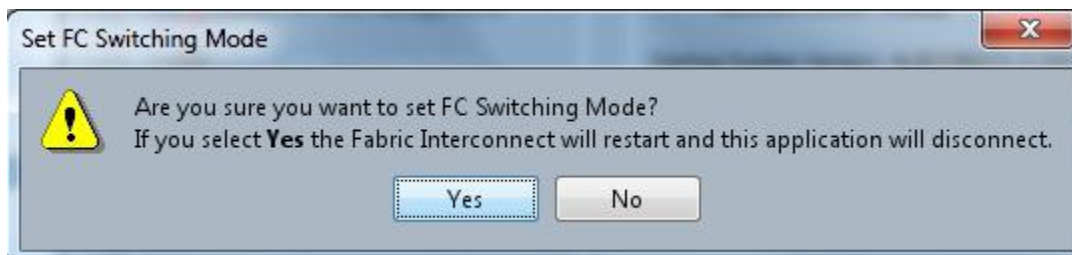
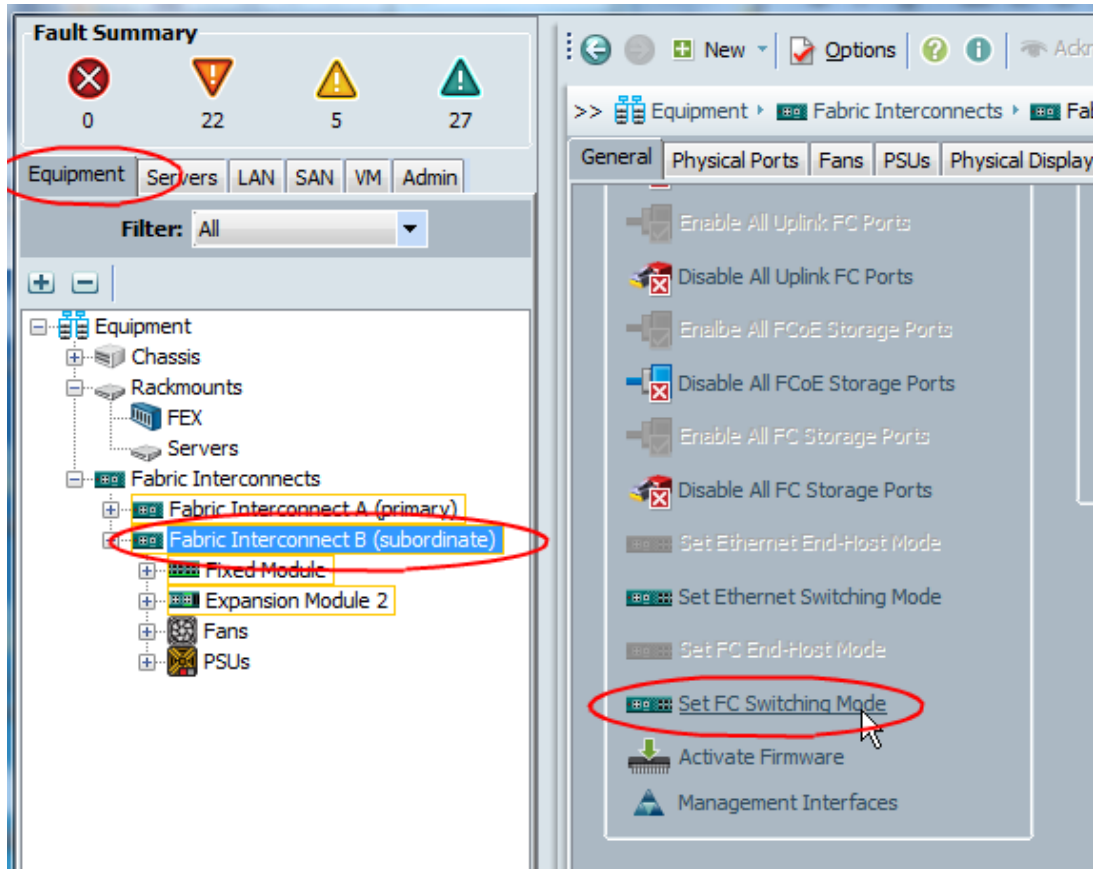
```
interface fc4/12
  switchport rate-mode dedicated
  switchport mode E
  switchport trunk mode auto
  no shutdown
```

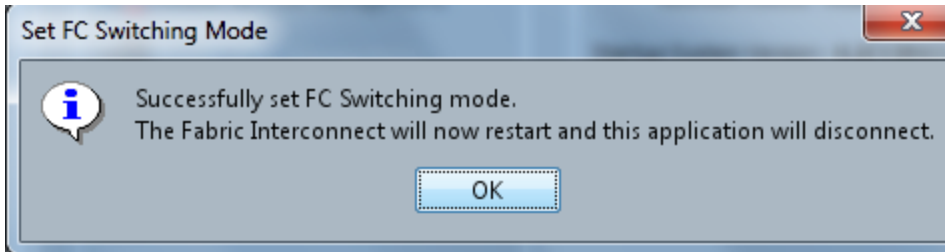
## 1.5 UCS FC Switch mode and TE port configuration

Configure UCS fibre module switch mode and E (ISL) and Trunk E (TE) ports to the upstream MDS switch

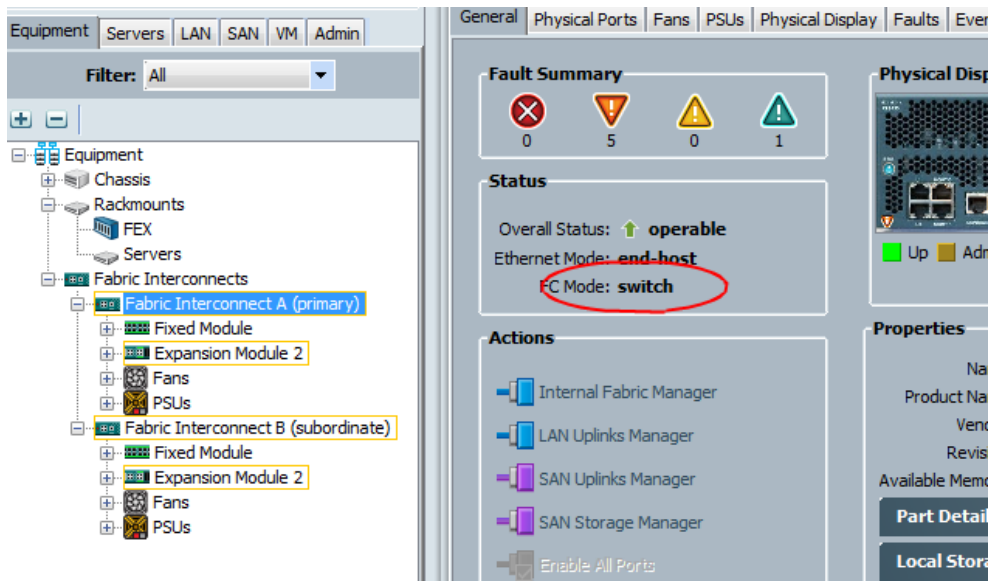
1) Switch mode is required on both 6100's. Only heterogeneous fc switch mode or NPV mode is allowed on the same cluster.

Changing to switch mode on one FI will change the setting for both FI's and cause a reboot of both 6100s. This is disruptive, both FI's will reboot more or less simultaneously. All data paths on both fabrics will be down.





2) After the UCS system reboots, you can check the FC module status.



3) There is no need to configure E-port(s) on the UCS. This is the default configuration.

```
cae-sj-ca3-A(nxos)# show running-config interface fc 2/1-2

!Command: show running-config interface fc2/1-2
!Time: Wed Oct 20 16:49:39 2010

version 4.2(1)N1(1.4)

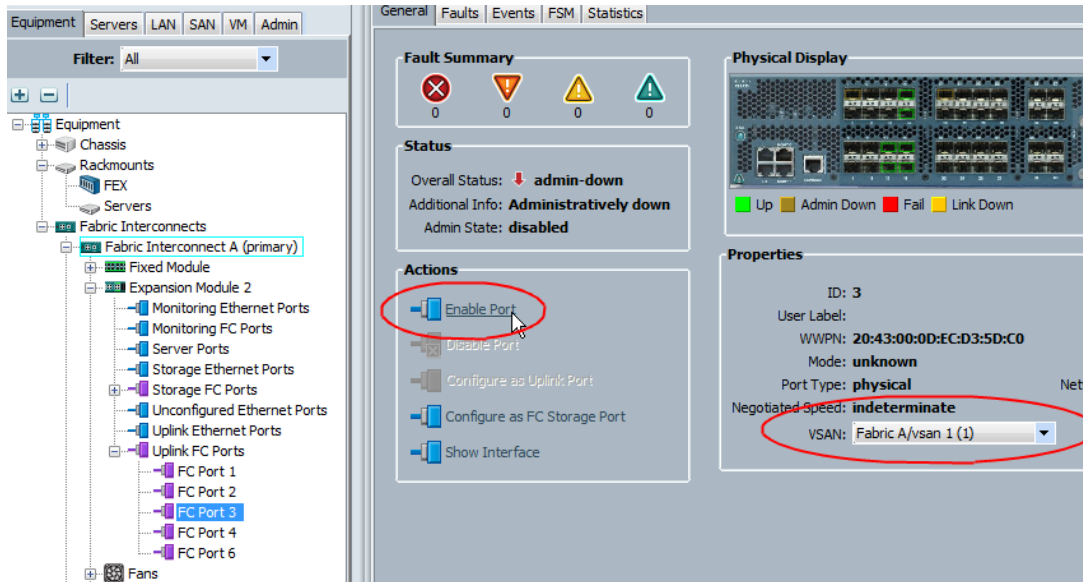
interface fc2/1
  switchport mode E
  no shutdown

interface fc2/2
  switchport mode E
  no shutdown
```

4) Set the native VSAN for the E-port(s). As these will be trunk ports capable of carrying multiple VSANs it is not necessary for both sides to be in the same VSAN. But, some best

practices place both sides in VSAN 1 as it is the default available VSAN on both the MDS and UCS FC module.

In the GUI do the following:



Or if you want to drive from the CLI:

```
cae-sj-ca3-A# scope fc-uplink
cae-sj-ca3-A /fc-uplink # enter vsan default 1 1
cae-sj-ca3-A /fc-uplink/vsan # enter member-port a 2 1
cae-sj-ca3-A /fc-uplink/vsan/member-port # exit
cae-sj-ca3-A /fc-uplink/vsan # enter member-port a 2 2
cae-sj-ca3-A /fc-uplink/vsan/member-port # exit
cae-sj-ca3-A /fc-uplink/vsan # set fcoe-vlan 1
cae-sj-ca3-A /fc-uplink/vsan # set id 1
cae-sj-ca3-A /fc-uplink/vsan # exit
```

```
cae-sj-ca3-A /fc-uplink # show vsan detail expand
```

VSAN:

```
Name: 1
Id: 1
FCoE VLAN: 1
Fabric ID: A
Default Zoning: Disabled
```

Member Port:

```
Fabric ID: A
Slot ID: 2
Port ID: 2
Oper State: Up
State Reason:
Oper Speed: 4gbps
```

Current Task:

Member Port:

Fabric ID: A  
Slot ID: 2  
Port ID: 1  
Oper State: Up  
State Reason:  
Oper Speed: 4gbps  
Current Task:

```
cae-sj-ca3-A(nxos)# show vsan membership interface fc 2/1-2
fc2/1
    vsan:1
    allowed list:1-4078,4080-4093
fc2/2
    vsan:1
    allowed list:1-4078,4080-4093
```

5) It is best practice to make the native VSAN the same on both end points.

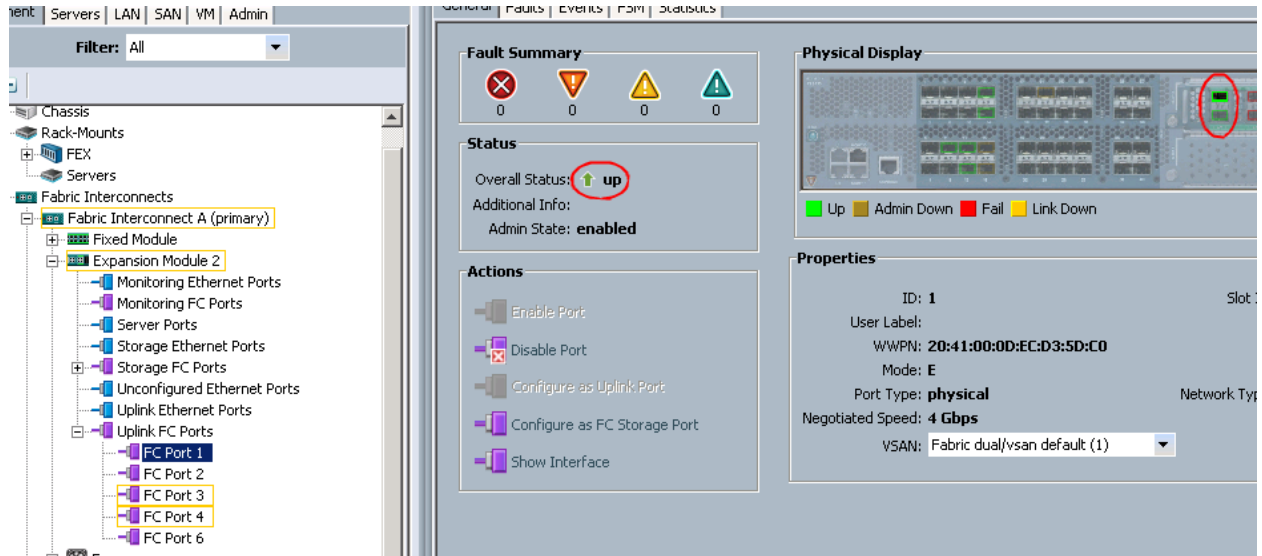
On The MDS side

```
cae-sj-9506-1# show vsan membership interface fc 4/11-12
fc4/11
    vsan:1
    allowed list:1-4078,4080-4093
fc4/12
    vsan:1
    allowed list:1-4078,4080-4093

cae-sj-9506-1# show interface fc 4/11
fc4/11 is trunking
    Hardware is Fibre Channel, SFP is short wave laser w/o OFC (SN)
    Port WWN is 20:cb:00:0d:ec:24:5b:c0
    Peer port WWN is 20:41:00:0d:ec:d3:5d:c0
    Admin port mode is E, trunk mode is auto
    snmp link state traps are enabled
    Port mode is TE
    Port vsan is 1
    Speed is 4 Gbps
    Rate mode is dedicated
    Transmit B2B Credit is 16
    Receive B2B Credit is 250
    Receive data field Size is 2112
    Beacon is turned off
    Trunk vsans (admin allowed and active) (1,10,50,100,103)
```



6) The ports should go into the up state on both the MDS and UCS side



7) Show MDS E-port status and VSAN allow list

```
cae-sj-9506-1(config-if)# show interface fc 1/1-2
fc1/1 is trunking
  Hardware is Fibre Channel, SFP is short wave laser w/o OFC (SN)
  Port WWN is 20:01:00:0d:ec:24:5b:c0
  Peer port WWN is 20:43:00:0d:ec:d3:5d:c0
  Admin port mode is E, trunk mode is auto
  snmp link state traps are enabled
  Port mode is TE
  Port vsan is 1
  Speed is 4 Gbps
  Rate mode is dedicated
  Transmit B2B Credit is 16
  Receive B2B Credit is 250
  Receive data field Size is 2112
  Beacon is turned off
  Trunk vsans (admin allowed and active) (1,10,50,100,103)
  Trunk vsans (up) (1,10,50,100,103)
  Trunk vsans (isolated) ()
  Trunk vsans (initializing) ()
```

8) Show UCS E-port status and VSAN allow list

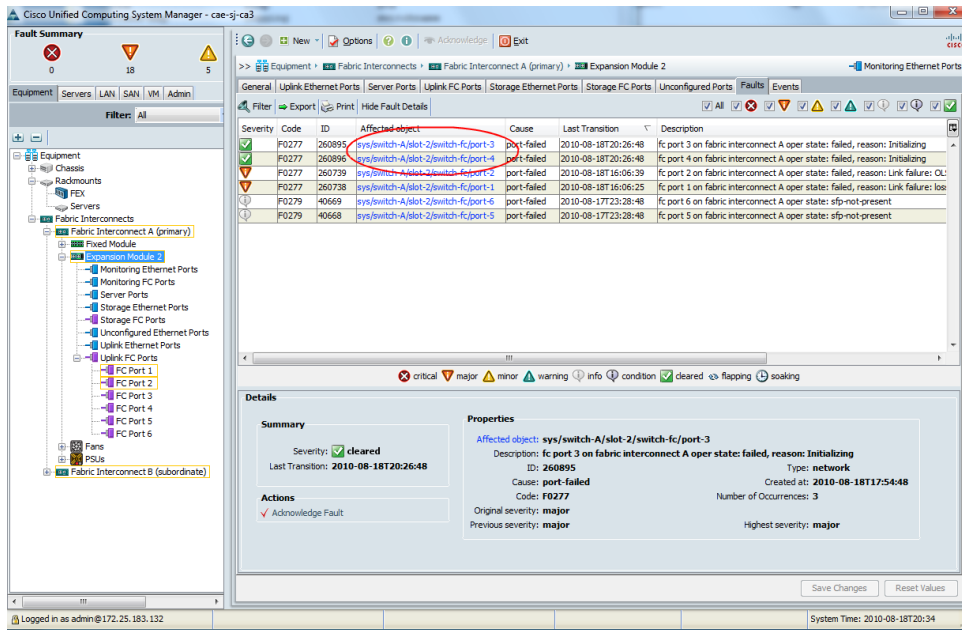
```
cae-sj-ca3-A(nxos)# show interface fc 2/3
```

```

fc2/3 is trunking
Hardware is Fibre Channel, SFP is short wave laser w/o OFC (SN)
Port WWN is 20:43:00:0d:ec:d3:5d:c0
Peer port WWN is 20:01:00:0d:ec:24:5b:c0
Admin port mode is E, trunk mode is on
snmp link state traps are enabled
Port mode is TE
Port vsan is 1
Speed is 4 Gbps
Transmit B2B Credit is 250
Receive B2B Credit is 16
Receive data field Size is 2112
Beacon is turned off
Trunk vsans (admin allowed and active) (1,10,50,100,103)
Trunk vsans (up) (1,10,50,100,103)
Trunk vsans (isolated) ()
Trunk vsans (initializing) ()

```

### 9) Check UCS events and faults



### 1.6 UCS FC Switch mode and TE port-channel configuration

Configure SAN port-channel to provide bandwidth aggregation and failover. SAN port-channels maintain its FSPF value until the failed link is corrected.

### 1) Show FC topology to verify connections

```
cae-sj-ca3-A(nxos)# show topo
```

```
FC Topology for VSAN 1 :
```

```
-----  
Interface Peer Domain Peer Interface Peer IP Address  
-----  
fc2/1 0x62(98) fc4/11 172.25.183.123  
fc2/2 0x62(98) fc4/12 172.25.183.123  
-----
```

The connected MDS switch IP is 172.25.183.123. This shows the fc port connections between the UCS FC module and the MDS line card

### 2) Configure the MDS port-channel configuration

```
cae-cae-sj-9506-1# conf t  
Enter configuration commands, one per line. End with CNTL/Z.  
cae-sj-9506-1(config)# interface port-channel 3  
cae-sj-9506-1(config-if)# channel mode active  
cae-sj-9506-1(config-if)# switchport mode e  
cae-sj-9506-1(config-if)# switchport rate-mode dedicated  
cae-sj-9506-1(config-if)# switchport trunk mode auto  
  
cae-sj-9506-1(config-if)# do show run interface port-channel 3  
  
!Command: show running-config interface port-channel 3  
!Time: Thu Jan 27 09:44:57 2011  
  
version 4.2(7b)  
  
interface port-channel 3  
channel mode active  
switchport mode E  
switchport rate-mode dedicated  
switchport trunk mode auto
```

### 3) Configure the MDS TE ports to be members of the port-channel

```
cae-sj-9506-1# show run interface port-channel 3  
  
!Command: show running-config interface port-channel 3  
!Time: Wed Oct 20 17:06:01 2010  
  
version 5.0(1a)  
  
interface port-channel 3  
channel mode active  
switchport mode E
```

```
switchport rate-mode dedicated
switchport trunk mode auto

cae-sj-9506-1# show run interface fc 4/11-12

!Command: show running-config interface fc4/11-12
!Time: Wed Oct 20 17:07:05 2010

version 5.0(1a)

interface fc4/11
switchport rate-mode dedicated
switchport mode E
switchport trunk mode auto
no shutdown

interface fc4/12
switchport rate-mode dedicated
switchport mode E
switchport trunk mode auto
no shutdown

cae-sj-9506-1# conf t
Enter configuration commands, one per line. End with CNTL/Z.
cae-sj-9506-1(config)# interface fc 4/11-12
cae-sj-9506-1(config-if)# channel-group 3 force
fc4/11 fc4/12 added to port-channel 3 and disabled
please do the same operation on the switch at the other end of the port-
channel,
then do "no shutdown" at both ends to bring it up
cae-sj-9506-1(config-if)# show run interface fc 4/11-12

!Command: show running-config interface fc4/11-12
!Time: Wed Oct 20 17:07:39 2010

version 5.0(1a)

interface fc4/11
switchport rate-mode dedicated
switchport mode E
switchport trunk mode auto
channel-group 3 force
no shutdown

interface fc4/12
switchport rate-mode dedicated
switchport mode E
switchport trunk mode auto
channel-group 3 force
no shutdown
```

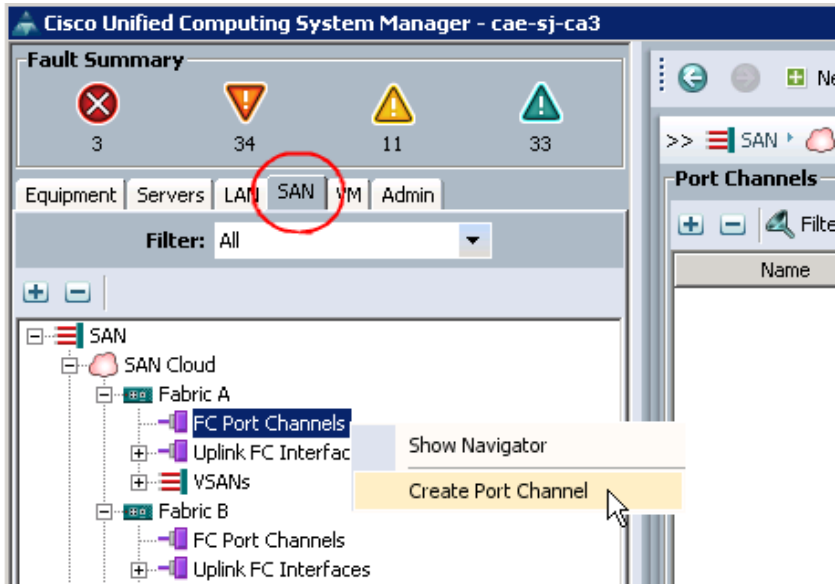
4) At this point the UCS fc ports will go into a fail state as they are not a member of a SAN port-channel

```

cae-sj-ca3-A(nxos)# show interface fc 2/1-2
fc2/1 is down (Isolation due to port-channel mis-configuration)
  Hardware is Fibre Channel, SFP is short wave laser w/o OFC (SN)
  Port WWN is 20:41:00:0d:ec:d3:5d:c0
  Admin port mode is E, trunk mode is on
  snmp link state traps are enabled
  Port vsan is 1
interface fc2/4
  switchport trunk mode on
  channel-group 1 force

```

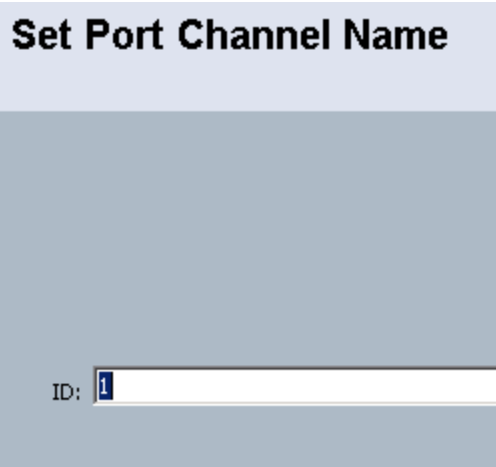
5) Create the UCS SAN port-channel



no shutdown

reate Port Channel

1. ✓ [Set Port Channel Name](#)
2. [Add Ports](#)



## Add Ports

Port Channel Admin Speed: auto

Port	Slot ID	WWPN
1	2	20:41:00:0D:EC:...
2	2	20:42:00:0D:EC:...
3	2	20:43:00:0D:EC:...
4	2	20:44:00:0D:EC:...
5	2	20:45:00:0D:EC:...
6	2	20:46:00:0D:EC:...

Port	Slot ID
------	---------

>>  
<<

## Add Ports

Port Channel Admin Speed: auto

Port	Slot ID	WWPN
3	2	20:43:00:0D:E...
4	2	20:44:00:0D:E...
5	2	20:45:00:0D:E...
6	2	

Port	Slot ID	WWPN
1		20:41:00:0D:EC:D3:5...
2	2	20:42:00:0D:EC:D3:5...

**Create Port Channel**

Successfully created FC Port-Channel 1 (Fabric A).

Show Navigator for FC Port-Channel 1 (Fabric A)

OK

### 6) Enable the port-channel

Cisco Unified Computing System Manager - cae-sj-ca3

Equipment Servers LAN SAN VM Admin

Filter: All

SAN Cloud

- Fabric A
  - FC Port Channels
    - FC Port-Channel 1 (Fabric A)

FC Port-Channel 1 (Fabric A)

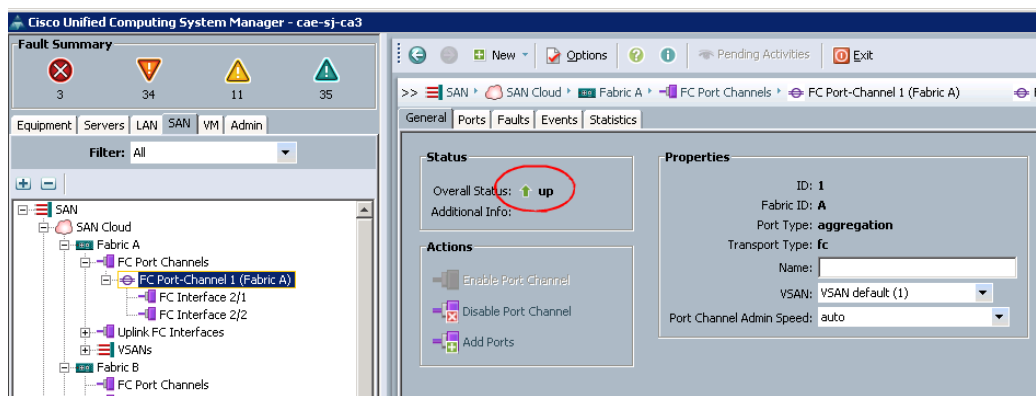
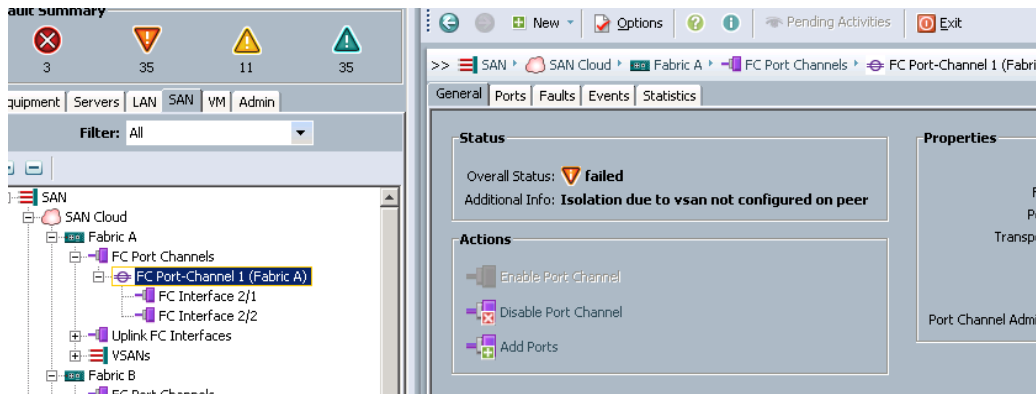
Overall Status: **admin-down**  
Additional Info: **Administratively down**

Actions

- Enable Port Channel
- Disable Port Channel
- Add Ports

Properties

ID: 1  
Fabric ID: A  
Port Type: aggregation  
Transport Type: fc  
Name:   
VSAN: VSAN default (1)  
Port Channel Admin Speed: auto



Or in the UCS CLI:

```

cae-sj-ca3-A # scope fc-uplink
cae-sj-ca3-A /fc-uplink # scope fabric a
cae-sj-ca3-A /fc-uplink/fabric # enter port-channel 1
cae-sj-ca3-A /fc-uplink/fabric/port-channel* # enable
cae-sj-ca3-A /fc-uplink/fabric/port-channel* # enter member-port 2 1
cae-sj-ca3-A /fc-uplink/fabric/port-channel/member-port* # enable
cae-sj-ca3-A /fc-uplink/fabric/port-channel/member-port* # exit
cae-sj-ca3-A /fc-uplink/fabric/port-channel* # enter member-port 2 2
cae-sj-ca3-A /fc-uplink/fabric/port-channel/member-port* # enable
cae-sj-ca3-A /fc-uplink/fabric/port-channel/member-port* # exit
cae-sj-ca3-A /fc-uplink/fabric/port-channel* # set adminspeed 4gbps
cae-sj-ca3-A /fc-uplink/fabric/port-channel* # exit
cae-sj-ca3-A /fc-uplink/fabric* # enter vsan 1 1 1
cae-sj-ca3-A /fc-uplink/fabric/vsan* # set fcoe-vlan 1
cae-sj-ca3-A /fc-uplink/fabric/vsan* # set id 1
cae-sj-ca3-A /fc-uplink/fabric/vsan* # enter member-port-channel a 1
cae-sj-ca3-A /fc-uplink/fabric/vsan/member-port-channel* # exit
cae-sj-ca3-A /fc-uplink/fabric/vsan* # commit-buffer

cae-sj-ca3-A /fc-uplink/fabric/vsan # exit
cae-sj-ca3-A /fc-uplink/fabric # show
cae-sj-ca3-A /fc-uplink/fabric # show detail expand

```

```
Fabric:
  Id: A
  Uplink Trunking: Enabled
  Current Task:

Port Channel:
  Channel Id: 1
  Name:
  Admin State: Enabled
  Oper State: Up
  Admin Speed: 4 Gbps
  Oper Speed (Gbps): 4

Member Port:
  Fabric ID: A
  Slot Id: 2
  Port Id: 1
  Membership: Up
  Admin State: Enabled
  Current Task:
```

```
cae-sj-ca3-A(nxos)# show interface san-port-channel 1
san-port-channel 1 is trunking
Hardware is Fibre Channel
Port WWN is 24:01:00:0d:ec:d3:5d:c0
Admin port mode is E, trunk mode is on
snmp link state traps are enabled
Port mode is TE
Port vsan is 1
Speed is 8 Gbps
Trunk vsans (admin allowed and active) (1,10,26,50,66,100-
101,103,123,222,24
0)
Trunk vsans (up) (1,10,50,100,103)
Trunk vsans (isolated) (26,66,101,123,222,240)
Trunk vsans (initializing) ()
5 minute input rate 2312 bits/sec, 289 bytes/sec, 2 frames/sec
5 minute output rate 1440 bits/sec, 180 bytes/sec, 2 frames/sec
2669 frames input, 194760 bytes
  0 discards, 0 errors
  0 CRC, 0 unknown class
  0 too long, 0 too short
2677 frames output, 158316 bytes
  0 discards, 0 errors
  0 input OLS, 1 LRR, 0 NOS, 0 loop inits
  6 output OLS, 10 LRR, 2 NOS, 0 loop inits
Member[1] : fc2/1
Member[2] : fc2/2
Interface last changed at Wed Oct 20 17:16:55 2010
```

```
cae-sj-ca3-A(nxos)# show run interface fc 2/1-2
```



```
!Command: show running-config interface fc2/1-2
!Time: Wed Oct 20 17:19:41 2010
```

```
version 4.2(1)N1(1.4)
```

```
interface fc2/1
  switchport mode E
  channel-group 1 force
  no shutdown
```

```
interface fc2/2
  switchport mode E
  channel-group 1 force
  no shutdown
```

```
cae-sj-ca3-A(nxos)# show run interface san-port-channel 1
```

```
!Command: show running-config interface san-port-channel 1
!Time: Wed Oct 20 17:20:12 2010
```

```
version 4.2(1)N1(1.4)
```

```
interface san-port-channel 1
  switchport mode E
  no shutdown
```

```
:28:10 2010
```

## 7) Use the show command to verify the the port-channel configuration on the MDS

```
cae-sj-9506-1(config-if)# sho interface port-channel 3
port-channel 3 is trunking
  Hardware is Fibre Channel
  Port WWN is 24:03:00:0d:ec:24:5b:c0
  Admin port mode is E, trunk mode is auto
  snmp link state traps are enabled
  Port mode is TE
  Port vsan is 1
  Speed is 8 Gbps
  Trunk vsans (admin allowed and active) (1,10,50,100,103)
  Trunk vsans (up) (1,10,50,100,103)
  Trunk vsans (isolated) ()
  Trunk vsans (initializing) ()
```

## 8) Verify the Fabric Topology

```
cae-sj-9506-1(config-if)# show topology
```

```
FC Topology for VSAN 1 :
```

```
-----
Interface Peer Domain Peer Interface Peer IP Address
-----
```

```

port-channel 3 0xb2(178) port-channel 3 ::
FC Topology for VSAN 10 :
-----
      Interface Peer Domain Peer Interface Peer IP Address
-----
port-channel 3 0x14(20) port-channel 3 ::
FC Topology for VSAN 50 :
-----
      Interface Peer Domain Peer Interface Peer IP Address
-----
port-channel 3 0x68(104) port-channel 3 ::
FC Topology for VSAN 100 :
-----
      Interface Peer Domain Peer Interface Peer IP Address
-----
port-channel 3 0x8c(140) port-channel 3 ::
FC Topology for VSAN 103 :
-----
      Interface Peer Domain Peer Interface Peer IP Address
-----
port-channel 3 0x31(49) port-channel 3 ::

```

## 1.7 UCS FC module switch mode FC storage port configuration

- 1) Use the GUI or CLI in UCS to create a storage VSAN to match the uplink VSAN you are using for the host HBA

Cisco Unified Computing System Manager - cae-sj-ca3

**Fault Summary**

3	32	11	34
---	----	----	----

Equipment Servers LAN SAN VM Admin

Filter: All

SAN

- SAN Cloud
  - Fabric A
    - FC Port Channels
      - FC Port-Channel 1 (Fabric A)
        - FC Interface 2/1
        - FC Interface 2/2
      - Uplink FC Interfaces
      - VSANs
        - VSAN 1 (1)
        - VSAN 10 (10)
        - VSAN 100 (100)
        - VSAN 101 (101)
        - VSAN 103 (103)
        - VSAN 222 (222)
        - VSAN 50 (50)
        - VSAN test-def (240)
  - Fabric B
  - SAN Pin Groups
  - Threshold Policies
  - VSANs
- Storage Cloud
  - Fabric A
    - Storage FC Interfaces
    - Storage FCoE Interfaces
    - VSANs
      - VSAN 100 (100)
      - VSAN 101 (101)
      - VSAN 66 (66)
  - Fabric B

Actions

- Enable Default zoning
- Disable Default zoning
- Delete

Properties

Name: 222  
ID: 222  
Fabric ID: A  
Network Type: san  
If Type: virtual  
Locale: external  
Transport Type: fc  
FCoE VLAN ID: 222  
Default Zoning: disabled

VSAN test-def (240)

- Fabric B
- SAN Pin Groups
- Threshold Policies
- VSANs
- Storage Cloud
- Fabric A
  - Storage FC Interfaces
  - Storage FCoE Interfaces
  - VSAN
- VSAN 100 (100)
- Fabric B
- VSANs
- Policy

Show Navigator

Create Storage VSAN

**Create VSAN**

## Create Storage VSAN

Name:

Common/Global
  Fabric A
  Fabric B
  Both Fabrics Configured Differently

You are creating a local VSAN in fabric A that maps to a VSAN ID that exists only in fabric A.

Enter the VSAN ID that maps to this VSAN.

VSAN ID:

A VLAN can be used to carry FCoE traffic and can be mapped to this VSAN.

Enter the VLAN ID that maps to this VSAN.

FCoE VLAN:

## 2) Use the CLI to create a storage VSAN

```
cae-sj-ca3-A# scope fc-storage
cae-sj-ca3-A /fc-storage # scope fabric a
cae-sj-ca3-A /fc-storage/fabric # enter vsan 100 100 100
cae-sj-ca3-A /fc-storage/fabric/vsan* # set fcoe-vlan 100
cae-sj-ca3-A /fc-storage/fabric/vsan* # enter member-port a 2 5
cae-sj-ca3-A /fc-storage/fabric/vsan/member-port* # commit-buffer
cae-sj-ca3-A /fc-storage/fabric/vsan/member-port # exit
cae-sj-ca3-A /fc-storage/fabric/vsan # end
```

```
cae-sj-ca3-A /fc-storage # show configuration
scope fc-storage
  enter vsan default 1 1
  set fcoe-vlan 1
  enter member-port b 2 5
  exit
exit
scope fabric a
  enter interface fc 2 5
  enable
  set user-label ""
  exit
  enter vsan 100 100 100
  set fcoe-vlan 100
  enter member-port a 2 5
  exit
exit
```

```

exit
scope fabric b
  enter interface fc 2 5
  enable
  set user-label ""
  exit
exit
set default-zoning disabled
set fcoe-storage-native-vlan 4048
exit

```

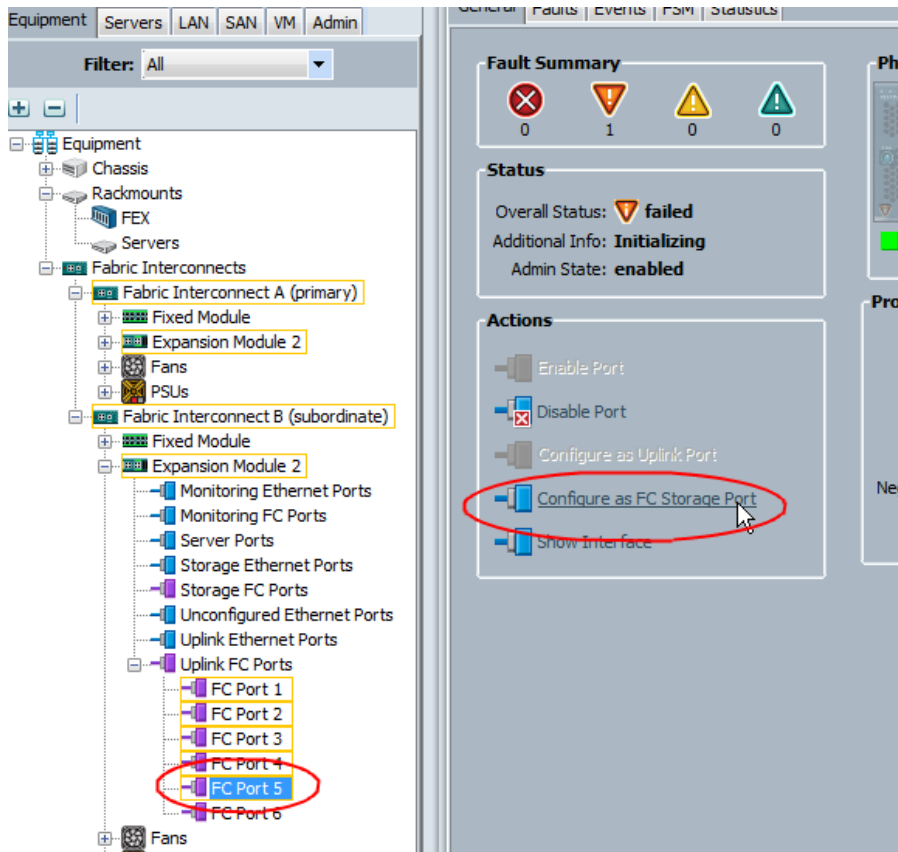
```
cae-sj-9506-1# sho fcns database vsan 100
```

VSAN 100:

FCID	TYPE	PWWN	(VENDOR)	FC4-TYPE:FEATURE
0x640101	N	50:0a:09:81:86:78:3b:98	(NetApp)	scsi-fcp:target
0x8c0000	N	20:00:00:25:b5:00:10:0e		
0x8c0001	N	50:0a:09:86:86:78:39:66	(NetApp)	scsi-fcp:target

The screenshot shows a network management interface with the following sections:

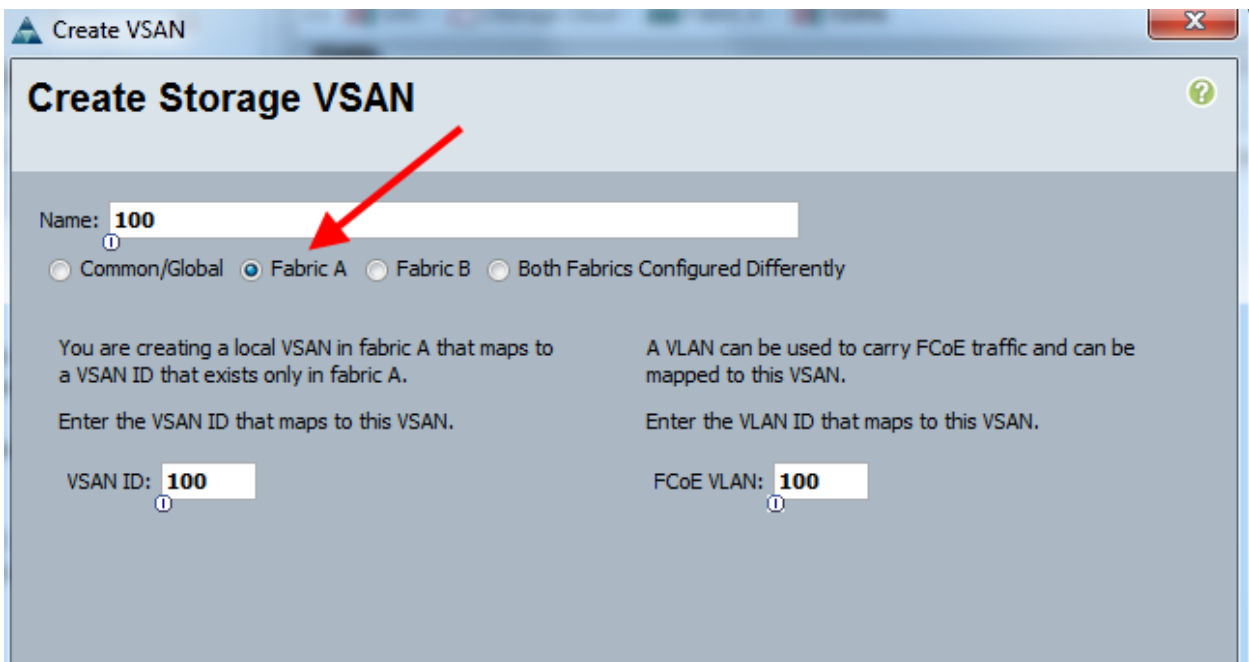
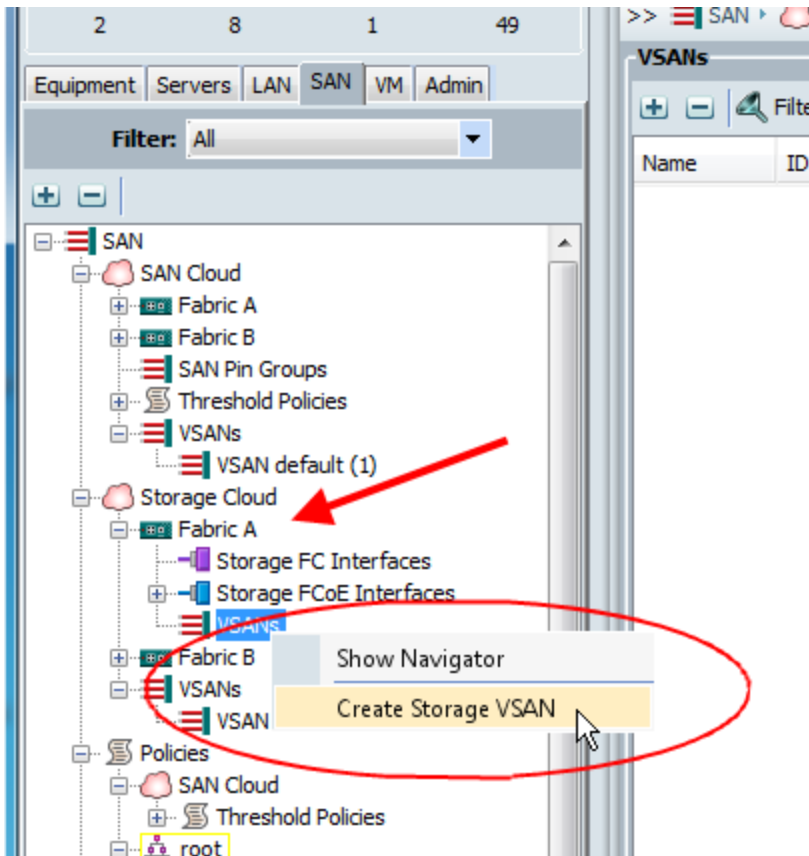
- General** | Faults | Events | FSM | Statistics
- Fault Summary**: Four status icons (red X, orange triangle, yellow triangle, green triangle) all showing a count of 0.
- Status**: Overall Status: **sfp-not-present** (orange triangle icon). Additional Info: **SFP not present**. Admin State: **enabled**.
- Actions**:
  - Enable Port
  - Disable Port
  - Configure as Uplink Port
  - Configure as FC Storage Port
  - Show Interface
- Physical Display**: A graphical representation of a switch chassis with various ports and status indicators. Legend: Up (green), Admin Down (brown), Fail (red), Link Down (yellow).
- Properties**:
  - ID: 6 | Slot ID: 2
  - User Label:
  - WWPN: 20:46:00:0D:EC:D3:5D:C0
  - Mode: E
  - Port Type: **physical** | Network Type:
  - Negotiated Speed: **indeterminate**
  - VSAN: **Fabric A/vsan 222 (222)** (highlighted in a red circle)
  - Other VSAN options in the dropdown: Fabric dual/vsan default (1), Fabric A/vsan 101 (101), Fabric A/vsan 103 (103), Fabric A/vsan 50 (50), Fabric A/vsan test def (240), Fabric dual/vsan 26 (26), Fabric dual/vsan default (1), Fabric dual/vsan globalvsan (123).



## 1.8 UCS FC module switch mode FCoE storage port configuration

Directly attach an FCoE storage port to UCS 10G port

- 1) Create a VSAN in the Storage Cloud for both the A and B fabric.



Repeat for the B Fabric

**Fault Summary**

2 8 1 49

Equipment Servers LAN SAN VM Admin

Filter: All

SAN

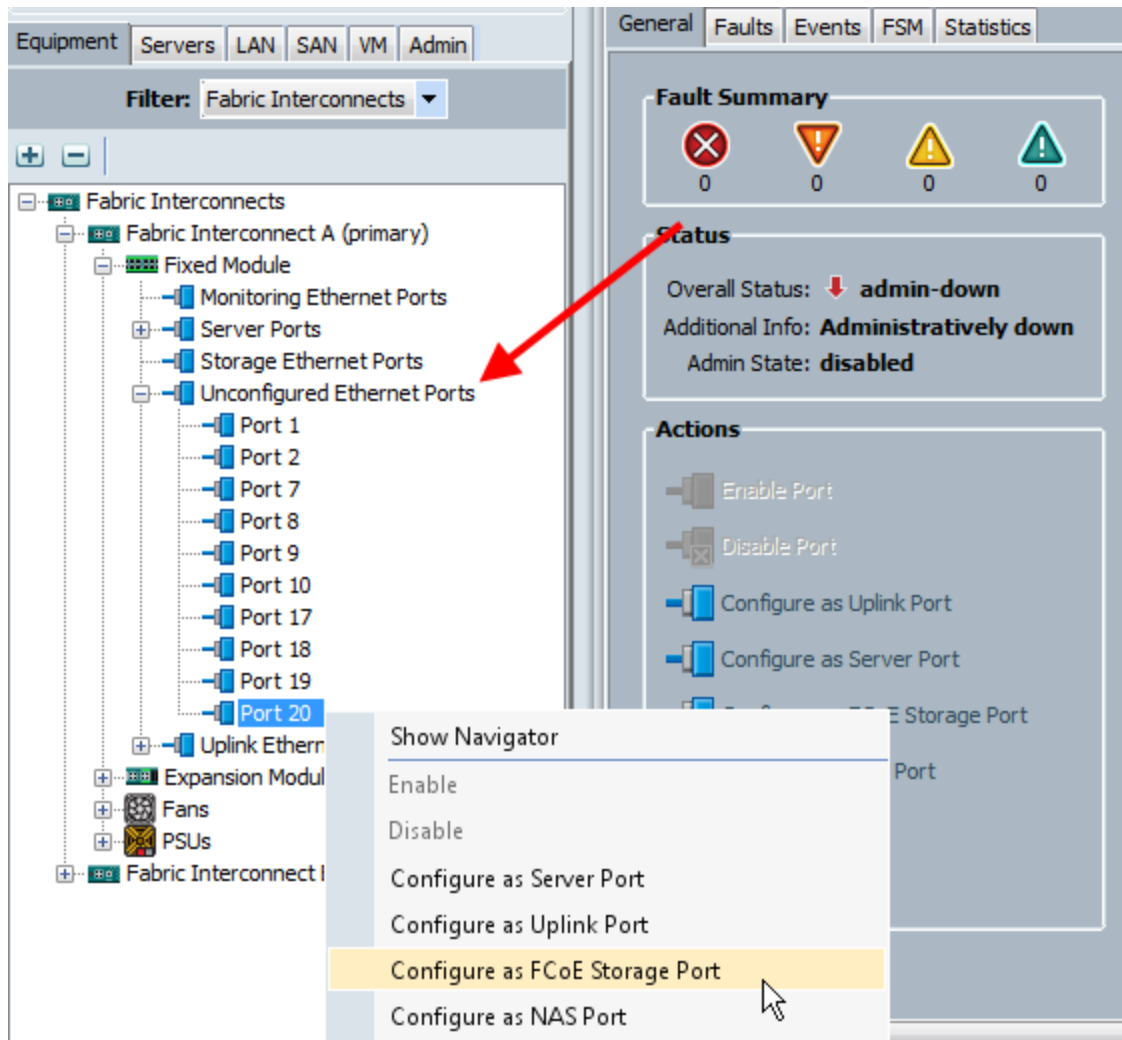
- SAN Cloud
  - Fabric A
  - Fabric B
  - SAN Pin Groups
  - Threshold Policies
  - VSANs
    - VSAN default (1)
- Storage Cloud
  - Fabric A
    - Storage FC Interfaces
    - Storage FCoE Interfaces
  - Fabric B
    - Storage FC Interfaces
    - Storage FCoE Interfaces
  - VSANs

VSANs

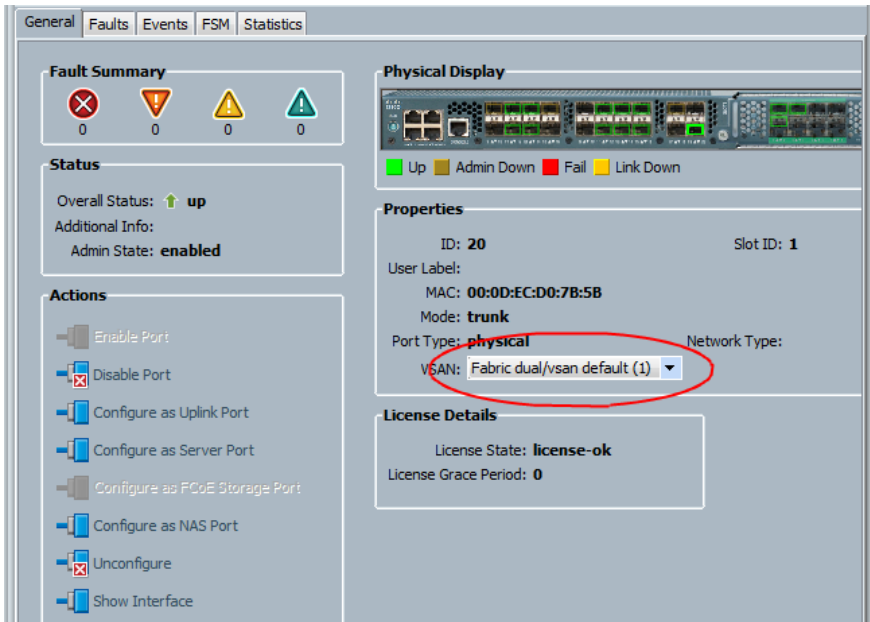
Name	ID	Fabric ID	If Type	If Role	Transport	FCoE VLAN ID
VSAN 200 (200)	200	B	virtual	storage	fc	200

In The Equipment Tab, Fabric Interconnect, Unconfigured Ethernet ports, select the port attached to the FCoE storage and configure it as a “Storage Ethernet Port”

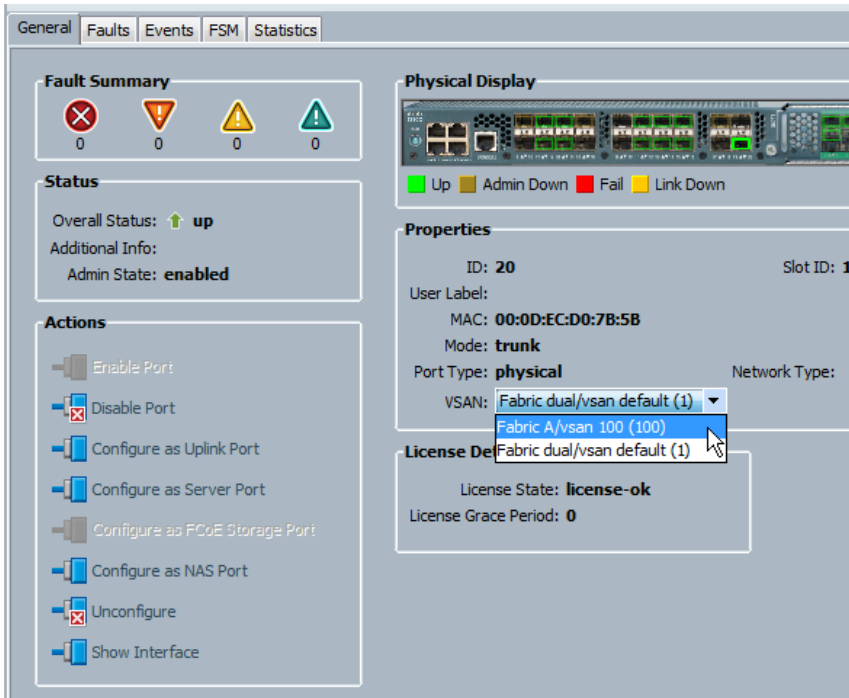




By default it will be placed into VSAN 1, move it to your desired VSAN for zoning



Move to VSAN 100



Login to the Fabric Interconnect to verify interface, VSAN, flogi information is as expected

```
FarNorth-A(nxos)# show interface ethernet 1/20
```

```
Ethernet1/20 is up
  Hardware: 10000 Ethernet, address: 000d.ecd0.7b5b (bia 000d.ecd0.7b5b)
  Description: F: FcoeEstc
  MTU 1500 bytes, BW 10000000 Kbit, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA
  Port mode is trunk
```

```
FarNorth-A(nxos)# show interface ethernet 1/20 fcoe
Ethernet1/20 is FCoE UP
  vfc1405 is Up
    FCID is 0xdc0000
    PWWN is 50:0a:09:85:87:d9:6e:b7
    MAC addr is 00:c0:dd:11:0d:89
```

```
FarNorth-A(nxos)# show interface vfc 1405
vfc1405 is up
  Bound interface is Ethernet1/20
  FCF priority is 128
  Hardware is Virtual Fibre Channel
  Port WWN is 25:7c:00:0d:ec:d0:7b:7f
  Admin port mode is F, trunk mode is on
  snmp link state traps are enabled
  Port mode is F, FCID is 0xdc0000
  Port vsan is 100
  5 minute input rate 64 bits/sec, 8 bytes/s
```

```
FarNorth-A(nxos)# show flogi database vsan 100
```

INTERFACE	VSAN	FCID	PORT NAME	NODE NAME
vfc1405	100	0xdc0000	50:0a:09:85:87:d9:6e:b7	50:0a:09:80:87:d9:6e:b7

```
Total number of flogi = 1.
```

## 1.9 UCS FCoE module zoning and zonesets

### Create zones and zonesets in FC switch mode

1) With this release there is no method to create zones and zonesets with just the UCS FC module. You must use a SAN switch that is connected with an E-port.

2) From a connected MDS switch you can view the existing zoneset for each VSAN

```
TOP# show zoneset active vsan 100
zoneset name ZS_mn_bootcamp_v100 vsan 100
  zone name Z_mn_bootcamp_4_v100 vsan 100
```

```
* fcid 0x400002 [pwwn 50:0a:09:88:87:d9:6e:b7]
   pwwn 20:00:00:25:b5:00:30:08

zone name Z_mn_bootcamp_3_v100 vsan 100
* fcid 0x400002 [pwwn 50:0a:09:88:87:d9:6e:b7]
   pwwn 20:00:00:25:b5:00:30:0a
```

### 3) From UCS switch you can show the active zoneset that exists from the connected MDS SAN switch

```
FarNorth-A(nxos)# show zoneset active vsan 100
zoneset name ZS_mn_bootcamp_v100 vsan 100
  zone name Z_mn_bootcamp_4_v100 vsan 100
  * fcid 0x400002 [pwwn 50:0a:09:88:87:d9:6e:b7]
     pwwn 20:00:00:25:b5:00:30:08

  zone name Z_mn_bootcamp_3_v100 vsan 100
  * fcid 0x400002 [pwwn 50:0a:09:88:87:d9:6e:b7]
     pwwn 20:00:00:25:b5:00:30:0a
```

### 4) Show the fcns database information to show the PWWN information from the UCS FC module (DomainID 0x8c)

```
FarNorth-A(nxos)# show fcns database vsan 100

VSAN 100:
-----
FCID          TYPE  PWWN                               (VENDOR)          FC4-TYPE:FEATURE
-----
0x400002      N     50:0a:09:88:87:d9:6e:b7 (NetApp)          scsi-fcp:target
0x40000d      N     21:00:00:c0:dd:12:04:fe (Qlogic)          scsi-fcp:init
0xdc0000      N     50:0a:09:85:87:d9:6e:b7 (NetApp)          scsi-fcp:target

Total number of entries = 3
```

### 5) Show the MDS local PWWN information by showing the flogi database

```
TOP# show fcns database vsan 100

VSAN 100:
-----
FCID          TYPE  PWWN                               (VENDOR)          FC4-TYPE:FEATURE
-----
0x400002      N     50:0a:09:88:87:d9:6e:b7 (NetApp)          scsi-fcp:target
0x40000d      N     21:00:00:c0:dd:12:04:fe (Qlogic)          scsi-fcp:init
0xdc0000      N     50:0a:09:85:87:d9:6e:b7 (NetApp)          scsi-fcp:target
```

### 6) Create a new VSAN 100 zoneset and zones from both the local MDS storage and remote UCS storage and host initiator

```
TOP(config)# zoneset name ZS_FCoE_V100 vsan 100

TOP(config-zoneset)# zone name Z_FCoE_V100 vsan 100
```

```
TOP(config-zone)# member pwnn 50:0a:09:85:87:d9:6e:b7
TOP(config-zone)# member pwnn 21:00:00:c0:dd:12:04:fe

TOP(config-zoneset)# zoneset name ZS_FCoE_V100 vsan 100
TOP(config-zoneset)# member Z_FCoE_V100
```

### 7) On the MDS switch, show the new zoneset configuration

```
TOP(config-zoneset)# show zoneset name ZS_FCoE_V100 vsan 100
zoneset name ZS_FCoE_V100 vsan 100
  zone name Z_FCoE_V100 vsan 100
    pwnn 50:0a:09:85:87:d9:6e:b7
    pwnn 21:00:00:c0:dd:12:04:fe
```

### 8) The zoneset and zone information has not been distributed to the UCS FC module yet. The old existing VSAN 100 zoneset is still active

```
FarNorth-A(nxos)# show zoneset name ZS_FCoE_V100 vsan 100
Zoneset not present
FarNorth-A(nxos)# show zoneset active vsan 100
zoneset name ZS_mn_bootcamp_v100 vsan 100
  zone name Z_mn_bootcamp_4_v100 vsan 100
    * fcid 0x400002 [pwnn 50:0a:09:88:87:d9:6e:b7]
    pwnn 20:00:00:25:b5:00:30:08

  zone name Z_mn_bootcamp_3_v100 vsan 100
    * fcid 0x400002 [pwnn 50:0a:09:88:87:d9:6e:b7]
    pwnn 20:00:00:25:b5:00:30:0a
```

### 9) On the MDS activate the zoneset in VSAN 100 and check the status

```
TOP(config-zoneset)# zoneset activate name ZS_FCoE_V100 vsan 100
WARNING: You are trying to activate zoneset ZS_FCoE_V100, which is different
from current active zoneset ZS_mn_bootcamp_v100. Do you want to continue?
(y/n) [n] y
Zoneset activation initiated. check zone status
```

```
TOP(config)# show zoneset active vsan 100
zoneset name ZS_FCoE_V100 vsan 100
  zone name Z_FCoE_V100 vsan 100
    * fcid 0xdc0000 [pwnn 50:0a:09:85:87:d9:6e:b7]
    * fcid 0x40000d [pwnn 21:00:00:c0:dd:12:04:fe]
```

### 10) Check the VSAN 100 activation status on the UCS fabric interconnect

```
FarNorth-A(nxos)# show zoneset active vsan 100
zoneset name ZS_FCoE_V100 vsan 100
  zone name Z_FCoE_V100 vsan 100
    * fcid 0xdc0000 [pwnn 50:0a:09:85:87:d9:6e:b7]
    * fcid 0x40000d [pwnn 21:00:00:c0:dd:12:04:fe]
```

11) Now the zoneset configuration is distributed to the UCS if zoneset distribution is enabled for the VSAN

This first time I run the command, zoneset distribution is not enabled for the VSAN from the upstream MDS switch.

```
FarNorth-A(nxos)# show zoneset name ZS_FCoE_V100 vsan 100
Zoneset not present
```

I enable distribution for all VSANs and do another zoneset activation

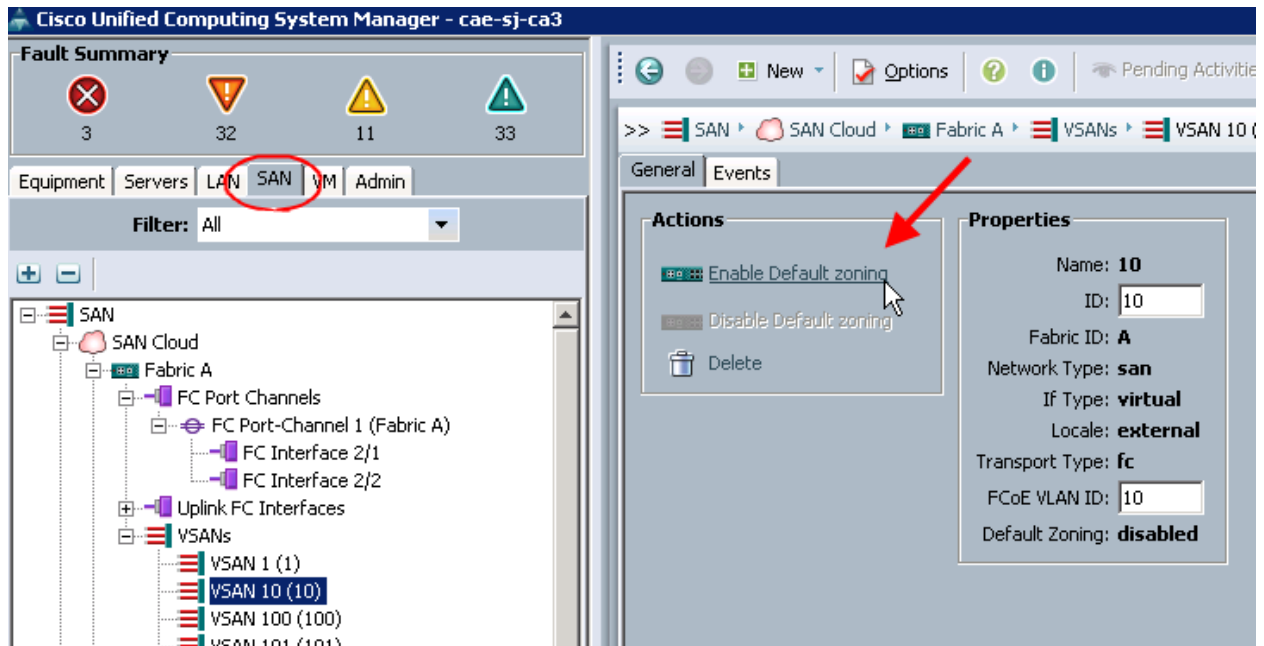
```
TOP(config)# zoneset distribute full vsan 1-4093
TOP(config)# zoneset activate name ZS_FCoE_V100 vsan 100
```

Now when I check the Fabric Interconnect, the zoneset configuration information is present.

```
FarNorth-A(nxos)# show zoneset name ZS_FCoE_V100 vsan 100
zoneset name ZS_FCoE_V100 vsan 100
  zone name Z_FCoE_V100 vsan 100
    pwwn 50:0a:09:85:87:d9:6e:b7
    pwwn 21:00:00:c0:dd:12:04:fe
```

## 1.10 UCS FC module switch mode default-zone enable (permit)

You can enable default-zoning, in MDS this is called default-zone permit. This can be used when there is no attached SAN switch to provide zoning configuration. In this case, all host hba's scsi initiators can access all storage targets. Lun masking must be performed to ensure hosts do not access storage luns for other hosts



```
cae-sj-ca3-A# scope fc-storage
cae-sj-ca3-A /fc-storage #
cae-sj-ca3-A /fc-storage # scope fabric a
cae-sj-ca3-A /fc-storage/fabric # enter vsan 101 101 101
cae-sj-ca3-A /fc-storage/fabric/vsan # set default-zoning enabled
```

```
cae-sj-ca3-A /fc-storage/fabric/vsan # show detail
```

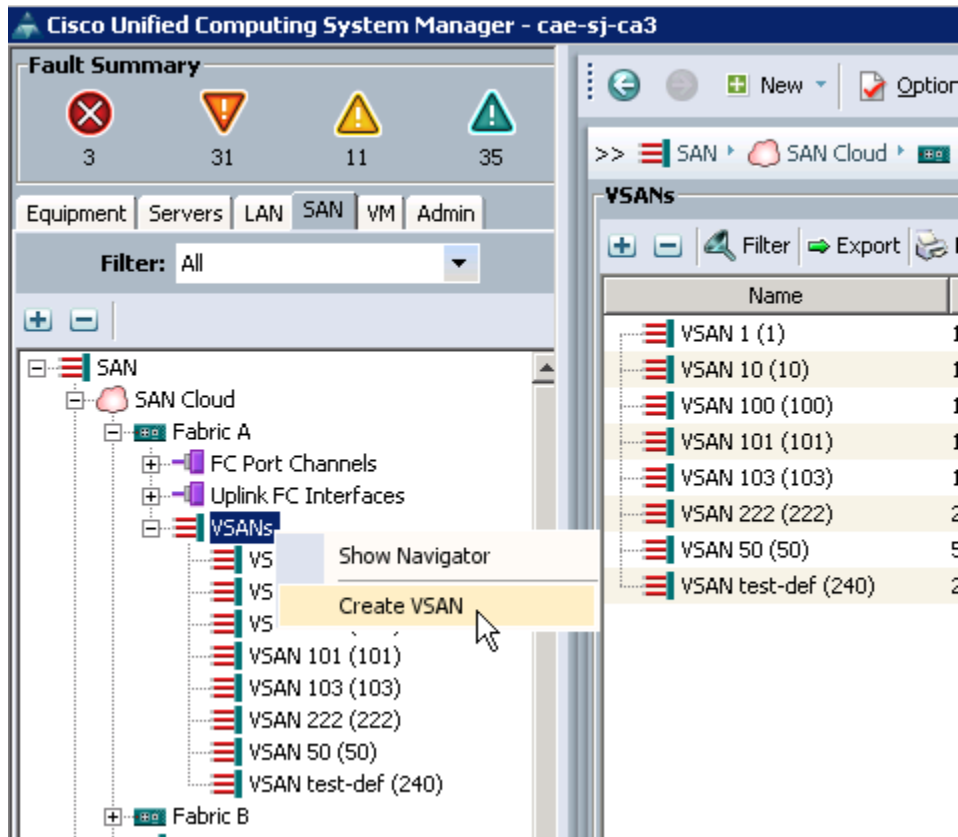
VSAN:

```
Name: 101
Id: 101
FCoE VLAN: 101
Fabric ID: A
Default Zoning: Enabled
```

```
cae-sj-ca3-A(nxos)# show run | include default-zone
zone default-zone permit vsan 100-101
```

## 1.11 UCS FC module switch mode Standalone Host HBA configuration

- 1) In an environment where there is no Northbound SAN connectivity and no uplinks are configured, the host service profile HBA will need to be assigned to the same VSAN as its direct attach storage VAN





Cisco Unified Computing System Manager - cae-sj-ca3

**Fault Summary**

3 31 11 34

Equipment Servers LAN SAN VM Admin

Filter: All

SAN > SAN Cloud > Fabric A > VSANs

VSANs

Name	ID	Fabric ID	If Type	If Role	Transport	FCoE VLAN ID
VSAN 100 (100)	100	A	virtual	storage	fc	100
VSAN 101 (101)	101	A	virtual	storage	fc	101
VSAN 222 (222)	222	A	virtual	storage	fc	222
VSAN 244 (244)	244	A	virtual	storage	fc	244
VSAN 66 (66)	66	A	virtual	storage	fc	66

VSAN 100 (100)  
VSAN 101 (101)  
VSAN 222 (222)  
VSAN 244 (244)  
VSAN 66 (66)