

MDS 9000 Chassis Backup, Restoration, and Replacement Configuration Example



Document ID: 117621

Contributed by Manjit Singh Minhas, Cisco TAC Engineer.

Nov 05, 2015

Contents

Introduction

Prerequisites

Requirements

Components Used

Configure

Verify

Troubleshoot

Introduction

This document describes how to back up and restore a Cisco 9000 Series Multilayer Data Switch (MDS) and how to replace or migrate from a current MDS 9000 Series switch to a new one. Instructions on how to apply the configuration from the old switch to the new switch are also included.

Caution: Portions of this procedure are disruptive and should only be completed during a maintenance window.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Configure

Complete these steps in order to configure the MDS 9000 Series switch for backup, restoration, and migration:

1. Enter the **copy running-config** command on the current switch in order to save the running configuration:

```
switch1# copy running-config startup-config
[#####]100%
```

- Copy the startup configuration onto the file server with any of the available methods on the switch (FTP, TFTP, SFTP, and SCP):

```
switch1# copy startup-config scp://user@host1/switch1.config
```

```
user@switch1's password:
sysmgr_system.cfg 100% |*****| 10938 00:00
```

- Enter the **show license usage** command in order to obtain the information about the license features:

```
Switch1# show license usage
```

Feature	Ins	Lic Count	Status	Expiry Date	Comments
IOA_184	No	0	Unused		-
XRC_ACCL	No	-	Unused		-
IOA_9222i	No	0	Unused		-
IOA_SSN16	No	0	Unused		-
DMM_184_PKG	No	0	Unused		-
DMM_9222i_PKG	No	0	Unused		-
FM_SERVER_PKG	Yes	-	Unused	never	-
MAINFRAME_PKG	Yes	-	Unused	never	-
ENTERPRISE_PKG	Yes	-	Unused	never	-
DMM_FOR_SSM_PKG	No	0	Unused		-
SAN_EXTN_OVER_IP	Yes	1	Unused	never	-
SME_FOR_9222I_PKG	No	-	Unused		-
SME_FOR_SSN16_PKG	No	0	Unused		-
PORT_ACTIVATION_PKG	No	0	Unused		-
SME_FOR_IPS_184_PKG	No	0	Unused		-
STORAGE_SERVICES_184	No	0	Unused		-
SAN_EXTN_OVER_IP_18_4	Yes	2	Unused	never	-
SAN_EXTN_OVER_IP_IPS2	Yes	2	Unused	never	-
SAN_EXTN_OVER_IP_IPS4	No	0	Unused		-
SAN_EXTN_OVER_IP_SSN16	No	0	Unused		-
STORAGE_SERVICES_9222i	No	0	Unused		-
STORAGE_SERVICES_SSN16	No	0	Unused		-
10G_PORT_ACTIVATION_PKG	No	0	Unused		-
STORAGE_SERVICES_ENABLER_PKG	No	0	Unused		-

- Check the license usage on the current switch, which includes the host ID for the license:

```
Switch1# show license host-id
License hostid: VDH=FOX10511F5N
```

Note: Make a note of this host-id because you must provide it to the Cisco Licensing team when you request that all licenses associated with the current switch host ID are migrated to the new switch host ID. The Licensing team can be contacted at licensing@cisco.com in order to obtain a new license file. Send an email to licensing@cisco.com AND include your Cisco.com ID in the body of the e-mail in this format: **Cisco.com ID: #####**

- Capture the port assignments via the Fabric Login (FLOGI) database. This information is used in order to verify that all of the cables are placed in the correct locations (device-to-interface connections):

```
switch1# show flogi database
```

```
-----  
INTERFACE VSAN FCID PORT NAME NODE NAME  
-----
```

```
fc1/8 600 0x7c0007 50:05:07:63:00:ce:a2:27 50:05:07:63:00:c0:a2:27  
fc1/13 1001 0xef0001 50:06:0e:80:03:4e:95:13 50:06:0e:80:03:4e:95:13  
fc1/15 600 0x7c0004 50:06:0b:00:00:13:37:ae 50:06:0b:00:00:13:37:af
```

6. If the current switch configuration indicates that interface-based zoning (fc X/Y) was performed, then replace the Worldwide Name (WWN) of the current switch in the zone member commands with the WWN of the new switch. Otherwise, you can skip this step.

Enter the **show wwn switch** command in order to display the switch WWN:

```
switch1 # show wwn switch  
Switch WWN is 20:00:00:0d:ec:02:1d:40
```

Here is an example of the switch WWN in the zoning:

```
zone name Z_1 vsan 9  
member interface fc1/9 swwn 20:00:00:0d:ec:02:1d:40  
member interface fc1/8 swwn 20:00:00:0d:ec:02:1d:40
```

Note: The current switch WWN should be replaced with the new switch WWN before you apply this configuration to the new switch. If interface-based zoning is not used, then skip this step.

7. If Inter VSAN Routing (IVR) is configured on the switch, then the IVR topology must be modified because it is based upon the switch WWN; therefore, you must replace the current switch WWN with the new switch WWN.

```
Switch1# ivr vsan-topology database  
autonomous-fabric-id 1 switch-wwn 20:00:00:0d:ec:02:1d:40 vsan-ranges 500,3002  
autonomous-fabric-id 1 switch-wwn 20:00:00:0c:85:e9:d2:c0 vsan-ranges 500,3000
```

In order to remove the switch from the IVR Virtual Storage Area Network (VSAN) topology, enter the **ivr vsan-topology database** command from IVR master switch:

```
Switch(config)# ivr vsan-topology database  
switch(config-ivr-topology-db)# no autonomous-fabric-id 1 switch-wwn  
20:00:00:0d:ec:02:1d:40 vsan-ranges 500,3002  
switch(config-ivr-topology-db)# end  
switch(config)# ivr vsan-topology activate  
switch(config)# ivr commit  
switch(config)# exit  
switch# copy running-config startup-config  
  
switch# show ivr vsan-topology database  
autonomous-fabric-id 1 switch-wwn 20:00:00:0c:85:e9:d2:c0 vsan-ranges 500,3000
```

Verify that the current switch WWN does not appear in the output of the **ivr vsan-topology database** command.

Note: If there are multiple IVR-enabled switches in the fabric, the current switch WWN must be removed from all of the IVR topologies in the fabric and replaced with the new switch WWN. Complete this step before the new switch is brought online. You can complete these modifications for the other switches with either the CLI or the Fabric Manager.

8. Shut down the current switch and/or unplug the management cable from the network.
9. Boot up the new switch and perform the basic initial configuration in order to reach the switch prompt. Assign the **mgmt 0** IP address to the new switch.
10. Apply the newly received license file to the new switch. Compare the switch host ID (**VDH=FOX071355X**) to the one listed in the license file:

```
Switch2# show license host-id
License hostid:
VDH=FOX071355X
```

Copy the newly-received license file from the Cisco Licensing team to the bootflash of the switch via TFTP:

```
switch2# copy tftp://x.x.x.x/newlicensefile.lic bootflash:
```

Install the license file:

```
switch2# install license bootflash: <licensefilename.lic>
Installing license ..done
```

11. Move or plug in the physical cables and devices from the original switch to the new switch.
12. If interface-based zoning (fc X/Y) was performed on the switch, then obtain the WWN of the new switch; otherwise, you can skip this step.

Enter the **show wwn switch** command in order to obtain the new switch WWN:

```
switch2# show wwn switch
Switch WWN is 20:00:00:0d:ec:02:50:40
$cp switch1.config switch1.config.orig
```

13. Make another copy of the original switch configuration so that you can modify it for the new switch and save the original backed up file. Modify the copied **switch1.config** running configuration file in a text editor, such as Notepad, in order to make these changes:
 - A. If interface-based zoning was performed (skip this step if interface-based zoning was not performed), open the copy of the old switch configuration in Notepad. Ensure that you find and replace the original switch WWN (**20:00:00:0d:ec:02:1d:40**) with the new switch WWN (**20:00:00:0d:ec:02:50:40**) where applicable.
 - B. You can remove the lines in the original configuration for the dynamic Fibre Channel ID (FCID) allocation portion under the **fcdomain fcid database** for the devices. Alternatively, you can ignore the FCID-related error messages that appear on the screen while you apply the original switch running configuration to the new switch.

fcdomain fcid database

```
vsan 1 wwn 50:06:01:6d:3e:e0:16:18 fcid 0xb20000 dynamic
vsan 1 wwn 50:06:01:65:3e:e0:16:18 fcid 0xb20100 dynamic
vsan 1 wwn 10:00:8c:7c:ff:30:10:db fcid 0xb20200 dynamic
vsan 1 wwn 10:00:8c:7c:ff:30:11:b9 fcid 0xb20300 dynamic
```

When you apply the original running configuration to the new switch without the removal of the dynamic FCIDs, the new switch produces errors similar to these:

Error: Invalid FCIDs.

```
switch2(config-fcid-db)# vsan 1 wwn 50:06:01:65:3e:e0:16:18 fcid 0xb20100 dynamic
Error: Invalid FCIDs.
```

These messages are expected and can be ignored if you do not want to remove the dynamic FCIDs from the original configuration before you apply it to the new switch. They appear because the new switch automatically assigns the FCIDs from the original switch-to-device configuration to the devices that are connected to it.

- C. Remove the lines that contain the Simple Network Management Protocol (SNMP) user accounts because the encrypted passwords are connected to the MAC address of the chassis. The user accounts are grouped together and begin with **snmp-server user** in the configuration file. Here is an example:

```
snmp-server user admin network-admin auth md5
0x46694cac2585d39d3bc00c8a4c7d48a6
localizedkey
snmp-server user san admin network-admin auth md5
0xcae40d254218747bc57ee1df348
```

Remove the lines that begin with **snmp-server user <user-id>**.

- D. Check the interface **mgmt0** IP address of the original configuration. If you want to assign the same IP address to the new switch, then you do not need to modify the configuration. However, if you boot up the new switch with a different IP address and want to keep the new IP address for a management port, ensure that you modify this line in the configuration before you apply it to the new switch:

```
interface mgmt0
ip address 10.x.x.x 255.255.255.0
```

14. Once all of the modifications are made to the new configuration file (per your new switch requirements), copy the file to the bootflash of the new switch and apply it.

```
Switch2# copy bootflash:<modifiedconfigswitch2_filename>
running-config
```

15. Recreate the SNMP user accounts:

```
switch2(config)# snmp-server user admin network-admin
auth md5 <actual_password>
```

16. If you intend to enable IVR on the new switch, add the new switch into the IVR topology. Otherwise,

you can skip this step.

Note: Before you add the new switch to the IVR topology, ensure that all of the Inter-Switch Link Protocol (ISL) ports are online and connected to the adjacent switches in the fabric.

```
switch2#show wwn switchSwitch WWN is 20:00:00:0d:ec:02:50:40
switch# config t
switch(config)# ivr vsan-topology database
switch(config-ivr-topology-db)# autonomous-fabric-id 1 switch-wwn
20:00:00:0d:ec:02:50:40 vsan-ranges 1,4
switch(config-ivr-topology-db)# exit
switch(config)# ivr vsan-topology activate
switch(config)# ivr commit
switch(config)# exit
switch# copy running-config startup-config
```

17. Open all of the devices that are connected to the ports or power on the devices in order to log in to the fabric. Enter the **show flogi database** command in order to verify that the devices are logged in:

```
switch2# show flogi database
-----
INTERFACE VSAN FCID PORT NAME NODE NAME
-----
fc1/8 600 0x7c0007 50:05:07:63:00:ce:a2:27 50:05:07:63:00:c0:a2:27
fc1/13 1001 0xef0001 50:06:0e:80:03:4e:95:13 50:06:0e:80:03:4e:95:13
fc1/15 600 0x7c0004 50:06:0b:00:00:13:37:ae 50:06:0b:00:00:13:37:af
```

18. Enter the **show zoneset active vsan x** command in order to verify that all of the devices are actively logged on to zoneset:

```
Switch2# show zoneset active vsan x

zoneset name ZoneSet12 vsan 12
  zone name ESX1_VMHBA3_CX310SPA_1 vsan 12
    * fcid 0xb20700 [pwwn 50:06:01:69:41:e0:d4:43]
    * fcid 0xb20800 [pwwn 21:01:00:1b:32:bd:64:e7]

  zone name ESX1_VMHBA3_CX310SPB_1 vsan 12
    * fcid 0xb20900 [pwwn 50:06:01:60:41:e0:d4:43]
    * fcid 0xb20800 [pwwn 21:01:00:1b:32:bd:64:e7]
```

Verify

The verification procedures for this configuration are described in the Configure section.

Troubleshoot

There is currently no specific troubleshooting information available for this configuration.