

Installing Cisco MDS NX-OS Release Software on a Cisco MDS Switch

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Initial Configuration of Cisco MDS NX-OS Software on a Cisco MDS Switch

To install the latest Cisco MDS NX-OS Release 9.x software images on a new Cisco MDS 9000 Series Multilayer switch, perform the following steps:

Procedure

Step 1 Verify the following physical connections for the new Cisco MDS 9000 Series Multilayer switch:

- The console port is physically connected to a computer terminal (or terminal server).
- The management 10/100/1000 Ethernet port (mgmt0) is connected to an external hub, switch, or a router.

For more information about physical connections, see the Cisco MDS 9000 Series Hardware Installation guides.

Note
On switches with dual supervisor modules, both the supervisor modules must have Ethernet connections on the management interfaces (mgmt 0) to maintain connectivity when switchovers occur during upgrades and downgrades.

Note
If the management 10/100/1000 Ethernet port (mgmt0) interface of the Cisco MDS 9700 Series Multilayer Directors has a preconfigured "/0" IPv6 address that cannot be removed, use the **write erase boot** command to clear the complete configuration of the device and reload the device using the **reload** command. Perform this process before commissioning the device into production, because this process is disruptive to the user traffic if it is applied to the active supervisor of a system. Ensure that there is an active console connection to the supervisor, because this process removes the IPv4 address of the mgmt0 interface.

Tip
Save the host ID information for future use, for example, to enable licensed features. The host ID information is provided in the Proof of Purchase document that accompanies the switch.

Step 2 Verify that the default console port parameters listed below are identical to the parameters of the computer terminal (or terminal server) attached to the switch console port:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity

See the Configuring Terminal Settings and Sessions chapter in the *Cisco MDS 9000 Series NX-OS Fundamentals Configuration Guide*.

Step 3 Power up the Cisco MDS 9000 Series Multilayer switch. The switch boots up automatically after powering on the switch.

Step 4 Obtain the IP address, subnet mask, and default gateway information that is required for the Cisco MDS 9000 Series Multilayer switch to communicate over the supervisor module Ethernet interface. This information is required to configure and manage the switch.

See the Using the Cisco NX-OS Setup Utility chapter in the *Cisco MDS 9000 Series NX-OS Fundamentals Configuration Guide*.

Step 5 Complete the System Admin Account Setup process.

If you create a short, easy-to-decipher password, your password will be rejected. Configure a strong password, as shown in the sample configuration. Passwords are case-sensitive. Explicitly create a password that meets the requirements that are listed in the Characteristics of Strong Passwords in the *Cisco MDS 9000 Series NX-OS Security Configuration Guide*.

Note
You can change the default password during the initial setup process. All Cisco MDS 9000 Series Multilayer switches have the network administrator as the default user (admin) with a default password (admin). You cannot change the default user.

```
---- System Admin Account Setup ----

Do you want to enforce secure password standard (yes/no) [y]: no

Enter the password for "admin":

Confirm the password for "admin":
```

Step 6 Enter **yes** to when prompted, to set up a mode and assign the information that is obtained in Step 5, on page 2.

See the Using the Cisco NX-OS Setup Utility chapter in the *Cisco MDS 9000 Series NX-OS Fundamentals Configuration Guide*.

Press **Ctrl-C** at prompts to skip the remaining configuration options and proceed with what is configured until that point.

Tip
If you do not want to answer a previously configured question, or if you want to skip answers to any questions, press **Enter**. If a default answer is not available (for example, a switch name), the switch uses the previously configured settings and moves to the next question.

The CLI configuration step (using factory defaults) is as follows:

```
---- Basic System Configuration Dialog ----

This setup utility will guide you through the basic configuration of
the system. Setup configures only enough connectivity for management
of the system.

Press Enter incase you want to skip any dialog. Use ctrl-c at anytime
to skip remaining dialogs.

Would you like to enter the basic configuration dialog (yes/no): yes
```

By default, two roles exist in all the switches:

- Network operator (network-operator) — Has permission to view only the configuration. The operator cannot make any configuration changes.
- Network administrator (network-admin) — Has permission to execute all commands and make configuration changes. The administrator can also create and customize up to 64 additional roles. One of these 64 additional roles can be configured during the initial setup process.

```
 Create another login account (yes/no) [n]: yes
```

Note
While configuring your initial setup, you can create an additional user account (if you are in the network-admin role) besides the administrator's account. The username must contain only non-numeric characters. See the Configuring User Accounts in the *Cisco MDS 9000 Series NX-OS Security Configuration Guide*.

```
Enter the user login ID: test

Enter the password for "test":
Confirm the password for "test":
Enter the user role [network-operator]:
```

Note
If you use SNMPv3, do not configure the SNMPv2 community string. Refer to the Configuring SMNP chapter in the *Cisco MDS 9000 Series NX-OS System Management Configuration Guide*.

```
Configure read-only SNMP community string (yes/no) [n]: yes

SNMP community string: admin
```

Note
The switch name is limited to 32 alphanumeric characters.

```
Enter the switch name: switch

Continue with Out-of-band (mgmt0) management configuration? [yes/no]: yes
```

Note
IPv6 is supported in Cisco MDS NX-OS Release 4.1(x) and later. However, the setup script supports only IPv4 for the management interface. For information about configuring IPv6 in the management interface, see the Cisco MDS 9000 Series NX-OS IP Services Configuration Guide.

```
Mgmt0 IPv4 address: ip_address
Mgmt0 IPv4 netmask: subnet_mask
Configure the default gateway? (yes/no) [y]: yes
IPv4 address of the default gateway : 10.104.122.1
Configure advanced IP options? (yes/no) [n]: yes
Continue with In-band (vsan1) management configuration? (yes/no) [n]: yes
Enable IP routing? (yes/no) [n]: yes
Configure static route? (yes/no) [n]: n
```

Note
Ensure that you have configured the IP route, IP default network address, and IP default gateway address to enable the SNMP access. If IP routing is enabled, the switch uses the IP route and the default network IP address. If IP routing is disabled, the switch uses the default gateway IP address.

```
Configure the default-network: (yes/no) [y]: yes
```

Note
The default network address is Destination prefix: dest_prefix provided in Mgmt0 IPv4 netmask: subnet_mask.

```
Default network IPv4 address: dest_prefix
Configure the DNS IPv4 address? (yes/no) [y]: yes
DNS IP address: name_server_ip_address
Configure the default domain name? (yes/no) [n]: yes
Default domain name: domain_name
Enable the ssh service? (yes/no) [y]:
Type of ssh key you would like to generate (dsa/rsa) [rsa]:
Number of rsa key bits <1024-4096> [1024]:
Enable the telnet service? (yes/no) [n]: y
Configure congestion/no_credit drop for fc interfaces? (yes/no) [y]: n
Enable the http-server? (yes/no) [y]:
Configure clock? (yes/no) [n]:
Configure timezone? (yes/no) [n]: yes
Enter timezone config [PST/MST/CST/EST] :PST
Enter Hrs offset from UTC [-23:+23] :
Enter Minutes offset from UTC [0-59] :+23
Configure summertime? (yes/no) [n]: yes
summer-time config :PDT 2 sunday march 02:00 1 sunday november 02:00 59
Configure NTP server? (yes/no) [n]: yes
NTP server IP address: ntp_server_IP_address
Configure default switchport interface state (shut/noshut) [shut]: shut
```

Note
The mgmt0 interface is not shut down at this point. Only the Fibre Channel, iSCSI, FCIP, and Gigabit Ethernet interfaces are shut down.

```
Configure default switchport trunk mode (on/off/auto) [on]: on
Configure default switchport port mode F (yes/no) [n]: yes
Configure default zone policy (permit/deny) [deny]: deny
Enable full zoneset distribution (yes/no) [n]: yes
Configure default zone mode (basic/enhanced) [basic]: basic
```

See the Configuring and Managing Zones chapter in the *Cisco MDS 9000 Series NX-OS Fabric Configuration Guide*.

```
The following configuration is applied:
username admin password admin_pass role network-admin
username user_name password user_pass role network-admin
snmp-server community snmp_community role
switchname switch
interface mgmt0
ip address ip_address subnet_mask
no shutdown
ip routing
ip route dest_prefix dest_mask dest_address
ip default-network dest_prefix
ip default-gateway default_gateway
ip name-server name_server
ip domain-name domain_name
telnet server disable
ssh key rsa 2048 force
ssh server enable
ntp server ipaddr ntp_server
```

```
system default switchport shutdown
system default switchport trunk mode on
system default switchport mode F
system default port-channel auto-create
zone default-zone permit vsan 1-4093
zoneset distribute full vsan 1-4093
system default zone mode enhanced

Would you like to edit the configuration? (yes/no) [n]: no
Would you like to edit the configuration? (yes/no) [n]: no
Use this configuration and save it? (yes/no) [y]: yes
```

Caution

If you do not save the configuration at this point, your changes will not be updated the next time the switch is rebooted. Type **yes** in order to save the new configuration. This process ensures that the kickstart and system boot images are also automatically configured.

Tip

Up to this point, you can only configure the switch using the CLI. Post this point, continue to configure the switch using either the CLI or the Cisco DCNM application. For more information on using the Cisco DCNM application to configure a switch, see the *Cisco DCNM Fundamentals Configuration Guide*.

```
Would you like to save the running-config to startup-config? (yes/no) [n]: y
[########################################] 100%
Copy complete.
```

If you continue to use the CLI, the login prompt is automatically displayed on your terminal.

Step 7 Log in to the switch using the new username and password.

Step 8 Verify that the required licenses are installed in the switch using the **show license** command.

The switch is initially shipped with the required licenses installed in the system. However, the initial license file does not cover unlicensed features that may be used during the grace period. For more information on licensing, see the *Cisco MDS 9000 Series NX-OS Licensing Guide*.

The following example shows the CLI output for a valid license:

```
switch# show license
license.lic:
SERVER this_host ANY
VENDOR cisco
INCREMENT ENTERPRISE_PKG cisco 1.0 permanent uncounted \
VENDOR_STRING=MDS HOSTID=VDH=REG070201 \
NOTICE="<LicFileID>ent_ips_main_fm.lic</LicFileID><LicLineID>0</LicLineI
D> \
<PAK>dummyPak</PAK>" SIGN=FB454F0A0D40
INCREMENT MAINFRAME_PKG cisco 1.0 permanent uncounted \
VENDOR_STRING=MDS HOSTID=VDH=REG070201 \
NOTICE="<LicFileID>ent_ips_main_fm.lic</LicFileID><LicLineID>1</LicLineI
D> \
<PAK>dummyPak</PAK>" SIGN=0DAE1B086D9E
INCREMENT SAN_EXTN_OVER_IP cisco 1.0 permanent 7 VENDOR_STRING=MDS \
HOSTID=VDH=REG070201 \
NOTICE="<LicFileID>ent_ips_main_fm.lic</LicFileID><LicLineID>2</LicLineI
D> \
<PAK>dummyPak</PAK>" SIGN=D336330C76A6
INCREMENT FM_SERVER_PKG cisco 1.0 permanent uncounted \
VENDOR_STRING=MDS HOSTID=VDH=REG070201 \
NOTICE="<LicFileID>ent_ips_main_fm.lic</LicFileID><LicLineID>3</LicLineI
D> \
<PAK>dummyPak</PAK>" SIGN=AEAEA04629E8
```

Step 9 Verify that the switch is running the desired Cisco MDS NX-OS Release 9.x software, depending on which version you have installed, by using the show version command:

```
switch# show version

Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
Documents: http://www.cisco.com/en/US/products/ps9372/tsd_products_support_series_home.html
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Software
BIOS: version 3.2.0
kickstart: version 9.3(2) [build 9.3(2)]
system: version 9.3(2) [build 9.3(2)]
BIOS compile time: 09/27/2022
kickstart image file is: bootflash:///m9700-sf4ek9-kickstart-mz.9.3.2.bin
kickstart compile time: 5/31/2022 12:00:00 [03/20/2022 12:14:26]

system image file is: bootflash:///m9700-sf4ek9-mz.9.3.2.bin
system compile time: 5/31/2022 12:00:00 [03/20/2022 13:49:56]


Hardware
cisco MDS 9710 (10 Slot) Chassis ("Supervisor Module-3")
Intel(R) Xeon(R) CPU with 8167260 kB of memory.
Processor Board ID JAE17050AU2

Device name: switch
bootflash: 3915776 kB
slot0: 0 kB (expansion flash)

Kernel uptime is 0 day(s), 0 hour(s), 48 minute(s), 25 second(s)

Last reset
Reason: Unknown
System version: 8.4(1)
Service:

plugin
Core Plugin, Ethernet Plugin
3:22 PM
```

If the desired Cisco MDS NX-OS Release 9.x software version is displayed, you can continue configuring the switch using one of the following options:

- Configure other Cisco MDS NX-OS features using the CLI. For more information about this, see Cisco MDS 9000 NX-OS and SAN-OS Configuration guides.
- Use Cisco DCNM-SAN to configure your switch. For more information, see the Cisco DCNM for SAN Configuration guides.

If the latest Cisco MDS NX-OS Release 9.x software is not displayed, continue upgrading or downgrading the switch, as required, to install the correct version.

Step 10 Verify the status of the modules on the switch, using the **show module** command.

```
switch# show module

Mod  Ports  Module-Type                        Model              Status
---  -----  ---------------------------------- ------------------ ----------
1    48     4/8/16/32 Gbps Advanced FC Module  DS-X9648-1536K9    ok
2    48     4/8/16/32 Gbps Advanced FC Module  DS-X9648-1536K9    ok
3    48     2/4/8/10/16 Gbps Advanced FC Module DS-X9448-768K9     ok
4    48     4/8/16/32 Gbps Advanced FC Module  DS-X9648-1536K9    ok
5    0      Supervisor Module-4                DS-X97-SF4-K9      active *
6    0      Supervisor Module-4                DS-X97-SF4-K9      ha-standby
7    48     2/4/8/10/16 Gbps Advanced FC Module DS-X9448-768K9     ok
8    48     1/10 Gbps Ethernet Module          DS-X9848-480K9     ok
10   34     1/10/40G IPS,2/4/8/10/16G FC Module DS-X9334-K9        ok

Mod  Sw               Hw
---  ---------------  ------
1    8.4(1)           1.0
2    8.4(1)           1.0
3    8.4(1)           2.0
4    8.4(1)           1.0
5    8.4(1)           1.0
6    8.4(1)           1.4
7    8.4(1)           2.0
8    8.4(1)           1.1
10   8.4(1)           1.0


Mod  MAC-Address(es)                         Serial-Num
---  --------------------------------------  ----------
1    2c-31-24-50-59-d4 to 2c-31-24-50-5a-08  JAE205202WW
2    00-b8-b3-ee-03-38 to 00-b8-b3-ee-03-6c  JAE223403BK
3    00-d6-fe-b0-4b-88 to 00-d6-fe-b0-4b-8b  JAE223003C1
4    00-76-86-be-41-79 to 00-76-86-be-41-ad  JAE2039020M
5    00-2f-5c-fc-81-dc to 00-2f-5c-fc-81-ef  JAE22490XKR
6    70-18-a7-7e-f8-94 to 70-18-a7-7e-f8-a7  JAE22440CB0
7    3c-0e-23-c4-9c-84 to 3c-0e-23-c4-9c-87  JAE18030477
8    0c-68-03-29-90-4c to 0c-68-03-29-90-7f  JAE173000Q4
10   00-8e-73-39-81-50 to 00-8e-73-39-81-5f  JAE200504DK

Mod  Online Diag Status
---  ------------------
1    Pass
2    Pass
3    Pass
4    Pass
5    Pass
6    Pass
7    Pass
8    Pass
10   Pass

Xbar Ports  Module-Type                        Model              Status
---  -----  ---------------------------------- ------------------ ----------
1    0      Fabric Module 3                    DS-X9710-FAB3      ok
2    0      Fabric Module 3                    DS-X9710-FAB3      ok
3    0      Fabric Module 3                    DS-X9710-FAB3      ok
4    0      Fabric Module 3                    DS-X9710-FAB3      ok

Xbar Sw               Hw
---  ---------------  ------
1    NA               1.1
2    NA               1.1
3    NA               1.1
4    NA               1.1
```

```
Xbar MAC-Address(es)                         Serial-Num
---  --------------------------------------  ----------
1    NA                                      JAE222305V6
2    NA                                      JAE222305VA
3    NA                                      JAE22170963
4    NA                                      JAE2217096Z
```