



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

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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:

Step 1 Log in to Cisco.com and click Log In at the top of the page. Enter your Cisco username and password.

Note Use your registered Cisco username and password to access the links provided in this document.

Step 2 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 3 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 4 Power up the Cisco MDS 9000 Series Multilayer switch. The switch boots up automatically after powering on the switch.

Step 5 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 6 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 7 Enter **yes** to when prompted, to set up a mode and assign the information that is obtained in Step 5.

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 SNMP](#) 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 8 Log in to the switch using the new username and password.

Step 9 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</LicLineID> \
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</LicLineID> \
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</LicLineID> \
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</LicLineID> \
D> \
<PAK>dummyPak</PAK>" SIGN=AEAEA04629E8
```

Step 10 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
Copyright (c) 2002-2019, Cisco Systems, Inc. All rights reserved.
```

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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 11

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	JAE22170962
