



# Using the Cisco NX-OS Setup Utility

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## Information About the Cisco NX-OS Setup Utility

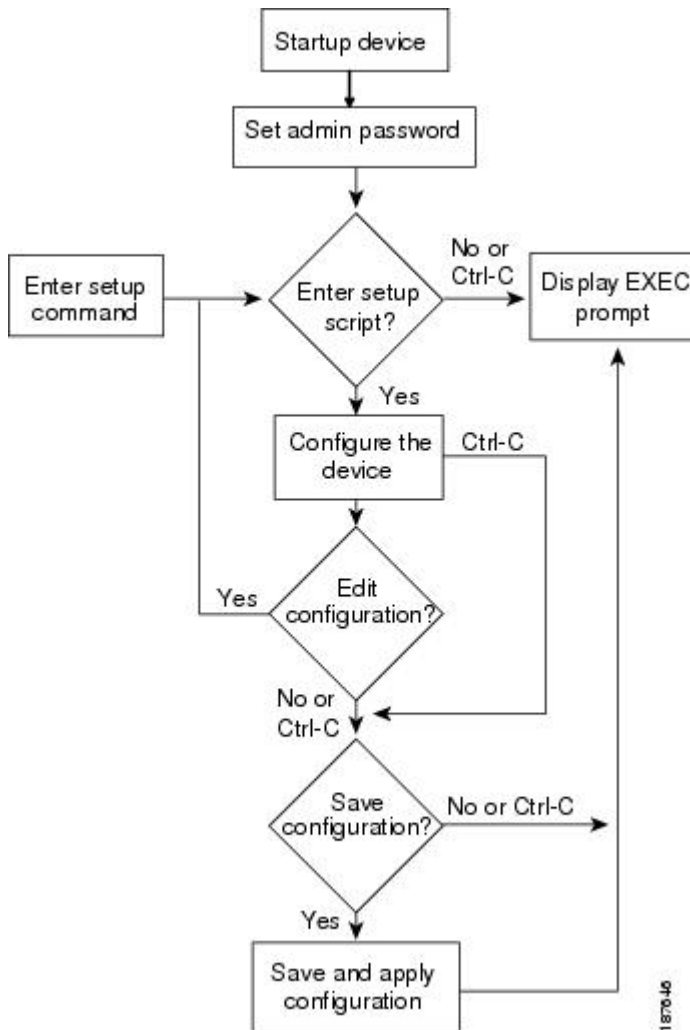
The Cisco NX-OS setup utility is an interactive command-line interface (CLI) mode that guides you through a basic (also called a startup) configuration of the system. The setup utility allows you to configure only enough connectivity for system management.

The setup utility allows you to build an initial configuration file using the System Configuration Dialog. The setup starts automatically when a device has no configuration file in NVRAM. The dialog guides you through initial configuration. After the file is created, you can use the CLI to perform additional configuration.

You can press **Ctrl-C** at any prompt to skip the remaining configuration options and proceed with what you have configured up to that point, except for the administrator password. If you want to skip answers to any questions, press **Enter**. If a default answer is not available (for example, the device hostname), the device uses what was previously configured and skips to the next question.

This figure shows how to enter and exit the setup script.

**Figure 1: Setup Script Flow**



You use the setup utility mainly for configuring the system initially, when no configuration is present. However, you can use the setup utility at any time for basic device configuration. The setup utility keeps the configured values when you skip steps in the script. For example, if you have already configured the mgmt0 interface, the setup utility does not change that configuration if you skip that step. However, if there is a default value for the step, the setup utility changes to the configuration using that default, not the configured value. Be sure to carefully check the configuration changes before you save the configuration.



**Note**

Be sure to configure the IPv4 route, the default network IPv4 address, and the default gateway IPv4 address to enable SNMP access. If you enable IPv4 routing, the device uses the IPv4 route and the default network IPv4 address. If IPv4 routing is disabled, the device uses the default gateway IPv4 address.



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**Note** The setup script only supports IPv4.

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## Prerequisites for the Setup Utility

The setup utility has the following prerequisites:

- Have a password strategy for your network environment.
- Connect the console port on the supervisor module to the network. If you have dual supervisor modules, connect the console ports on both supervisor modules to the network.
- Connect the Ethernet management port on the supervisor module to the network. If you have dual supervisor modules, connect the Ethernet management ports on both supervisor modules to the network.
- Enable the licensing grace period, if applicable. For detailed information about licensing, see the [Cisco MDS 9000 Family NX-OS Software Licensing Guide](#).

## Initial Setup Routine

The first time that you access a switch in the Cisco MDS 9000 Family, it runs a setup program that prompts you for the IP address and other configuration information necessary for the switch to communicate over the supervisor module Ethernet interface. This information is required to configure and manage the switch.

The IP address can only be configured from the CLI. When you power up the switch for the first time assign the IP address. After you perform this step, the Cisco MDS 9000 Family Fabric Manager can reach the switch through the console port.

## Configuring Out-of-Band Management

You can configure out-of-band management on the mgmt 0 interface.



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**Note** You can configure both in-band and out-of-band configuration together by entering Yes in both Step 12c and Step 12d in the following procedure.

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**Step 1** Power on the switch. Switches in the Cisco MDS 9000 Family boot automatically.

**Step 2** Enter yes (yes is the default) to enable secure password standard.

```
Do you want to enforce secure password standard (yes/no): yes
```

**Note** You can also enable secure password standard using the **password strength-check** command. A secure password should contain characters from at least three of the classes: lower case letters, upper case letters, digits, and special characters.

**Step 3** Enter the new password for the administrator.

Enter the password for admin: *admin-password*

Confirm the password for admin: *admin-password*

**Tip** If a password is trivial (short, easy-to-decipher), your password configuration is rejected. Be sure to configure a strong password as shown in the sample configuration. Passwords are case-sensitive.

**Step 4** Enter yes to enter the setup mode.

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

\*Note: setup is mainly used for configuring the system initially, when no configuration is present. So setup always assumes system defaults and not the current system configuration values.

Press Enter at anytime to skip a dialog. Use ctrl-c at anytime to skip the remaining dialogs.

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

The setup utility guides you through the basic configuration process. Press **Ctrl-C** at any prompt to end the configuration process.

**Step 5** Enter yes (no is the default) if you do not wish to create additional accounts.

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

While configuring your initial setup, you can create an additional user account (in the network-admin role) besides the administrator's account.

**Note** User login IDs must contain non-numeric characters.

a) Enter the user login ID.

Enter the user login ID: *user\_name*

b) Enter and confirm the user password.

Enter the password for *user\_name*: *user-password*

Confirm the password for *user\_name*: *user-password*

c) Assign the user role network-admin (network-operator is the default).

Enter the user role [network-operator]: **network-admin**

**Step 6** Configure the read-only or read-write SNMP community string.

- a) Enter yes (no is the default) to avoid configuring the read-only SNMP community string.

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

- b) Enter the SNMP community string.

```
SNMP community string: snmp_community
```

**Step 7** Enter a name for the switch.

**Note** The switch name is limited to 32 alphanumeric characters. The default is switch.

```
Enter the switch name: switch_name
```

**Step 8** Enter yes (yes is the default) at the configuration prompt to configure out-of-band management.

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

- a) Enter the mgmt0 IPv4 address.

```
Mgmt0 IPv4 address: ip_address
```

- b) Enter the mgmt0 IPv4 subnet mask.

```
Mgmt0 IPv4 netmask: subnet_mask
```

**Step 9** Enter yes (yes is the default) to configure the default gateway.

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

- a) Enter the default gateway IP address.

```
IP address of the default gateway: default_gateway
```

**Step 10** Enter yes (no is the default) to configure advanced IP options such as in-band management, static routes, default network, DNS, and domain name.

```
Configure Advanced IP options (yes/no)? [n]: yes
```

- a) Enter no (no is the default) at the in-band management configuration prompt.

```
Continue with in-band (VSAN1) management configuration? (yes/no) [no]: no
```

- b) Enter yes (yes is the default) to enable IPv4 routing capabilities.

```
Enable ip routing capabilities? (yes/no) [y]: yes
```

- c) Enter yes (yes is the default) to configure a static route.

Configure static route: (yes/no) [y]: **yes**

Enter the destination prefix.

Destination prefix: *dest\_prefix*

Enter the destination prefix mask.

Destination prefix mask: *dest\_mask*

Enter the next hop IP address.

Next hop ip address: *next\_hop\_address*

**Note** Be sure to configure the IP route, the default network IP address, and the default gateway IP address to enable 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.

- d) Enter yes (yes is the default) to configure the default network.

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

Enter the default network IPv4 address.

**Note** The default network IPv4 address is the destination prefix provided in Step 10c.

Default network IP address [dest\_prefix]: *dest\_prefix*

- e) Enter yes (yes is the default) to configure the DNS IPv4 address.

Configure the DNS IP address? (yes/no) [y]: **yes**

Enter the DNS IP address.

DNS IP address: *name\_server*

- f) Enter yes (no is the default) to skip the default domain name configuration.

Configure the default domain name? (yes/no) [n]: **yes**

Enter the default domain name.

Default domain name: *domain\_name*

- Step 11** Enter yes (yes is the default) to enable the SSH service.

Enabled SSH service? (yes/no) [n]: **yes**

Enter the SSH key type.

```
Type the SSH key you would like to generate (dsa/rsa)? rsa
```

Enter the number of key bits within the specified range.

```
Enter the number of key bits? (768-2048) [1024]: 2048
```

**Step 12** Enter yes (no is the default) to disable the Telnet service.

```
Enable the telnet service? (yes/no) [n]: yes
```

**Step 13** Enter yes (yes is the default) to configure congestion or no\_credit drop for FC interfaces.

```
Configure congestion or no_credit drop for fc interfaces? (yes/no) [q/quit] to quit [y]:yes
```

**Step 14** Enter con(con is the default) to configure congestion or no\_credit drop.

```
Enter the type of drop to configure congestion/no_credit drop? (con/no) [c]:con
```

**Step 15** Enter a value from 100 to 1000 (d is the default) to calculate the number of milliseconds for congestion or no\_credit drop.

```
Enter number of milliseconds for congestion/no_credit drop[100 - 1000] or [d/default] for default:100
```

**Step 16** Enter a mode for congestion or no\_credit drop.

```
Enter mode for congestion/no_credit drop[E/F]:
```

**Step 17** Enter yes (no is the default) to configure the NTP server.

```
Configure NTP server? (yes/no) [n]: yes
```

Enter the NTP server IPv4 address.

```
NTP server IP address: ntp_server_IP_address
```

**Step 18** Enter shut (shut is the default) to configure the default switch port interface to the shut (disabled) state.

```
Configure default switchport interface state (shut/noshut) [shut]: shut
```

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

**Step 19** Enter on (off is the default) to configure the switch port trunk mode.

```
Configure default switchport trunk mode (on/off/auto) [off]: on
```

**Step 20** Enter yes (yes is the default) to configure the switchport mode F.

```
Configure default switchport mode F (yes/no) [n]: y
```

**Step 21** Enter on (off is the default) to configure the PortChannel auto-create state.

```
Configure default port-channel auto-create state (on/off) [off]: on
```

**Step 22** Enter permit (deny is the default) to deny a default zone policy configuration.

```
Configure default zone policy (permit/deny) [deny]: permit
```

Permits traffic flow to all members of the default zone.

**Note** If you are executing the setup script after issuing a **write erase** command, you must explicitly change the default zone policy to permit for VSAN 1 after finishing the script using the following commands:

```
switch# configure terminal
switch(config)# zone default-zone permit vsan 1
```

**Step 23** Enter yes (no is the default) to disable a full zone set distribution.

```
Enable full zoneset distribution (yes/no) [n]: yes
```

Overrides the switch-wide default for the full zone set distribution feature.

You see the new configuration. Review and edit the configuration that you have just entered.

**Note** If you are executing the setup script after issuing a **write erase** command, you must explicitly change the default zone policy to permit for VSAN 1 after finishing the script using the following commands:

```
switch# configure terminal
switch(config)# zoneset distribute full vsan 1
```

**Step 24** Enter enhanced (basic is the default) to configure default-zone mode as enhanced.

```
Configure default zone mode (basic/enhanced) [basic]: enhanced
```

Overrides the switch-wide default zone mode as enhanced.

**Note** If you are executing the setup script after issuing a **write erase** command, you must explicitly change the default zoning mode to enhanced for VSAN 1 after finishing the script using the following commands:

```
switch# configure terminal
switch(config)# zone mode enhanced vsan 1
```

**Step 25** Enter no (no is the default) if you are satisfied with the configuration.

The following configuration will be applied:

```
username admin password admin_pass role network-admin
username user_name password user_pass role network-admin
snmp-server community snmp_community ro
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]: n
```

**Step 26** Enter yes (yes is default) to use and save this configuration.

```
Use this configuration and save it? (yes/no) [y]: yes
```

**Caution** If you do not save the configuration at this point, none of your changes are updated the next time the switch is rebooted. Type yes to save the new configuration. This ensures that the kickstart and system images are also automatically configured.

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## Configuring In-Band Management

The in-band management logical interface is VSAN 1. This management interface uses the Fibre Channel infrastructure to transport IP traffic. An interface for VSAN 1 is created on every switch in the fabric. Each switch should have its VSAN 1 interface configured with either an IPv4 address or an IPv6 address in the same subnetwork. A default route that points to the switch providing access to the IP network should be configured on every switch in the Fibre Channel fabric.



**Note** You can configure both in-band and out-of-band configuration together by entering Yes in both Step 10c and Step 10d in the following procedure.

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## SUMMARY STEPS

1. Power on the switch. Switches in the Cisco MDS 9000 Family boot automatically.
2. Enter the new password for the administrator.
3. Enter yes to enter the setup mode.
4. Enter yes (yes is the default) to enable secure password standard
5. Enter no (no is the default) if you do not wish to create additional accounts.
6. Configure the read-only or read-write SNMP community string.
7. Enter a name for the switch.
8. Enter no (yes is the default) at the configuration prompt to configure out-of-band management.
9. Enter yes (yes is the default) to configure the default gateway.
10. Enter yes (no is the default) to configure advanced IP options such as in-band management, static routes, default network, DNS, and domain name.
11. Enter no (no is the default) to disable the Telnet service.
12. Enter yes (yes is the default) to enable the SSH service.
13. Enter the SSH key type.
14. Enter the number of key bits within the specified range.
15. Enter no (no is the default) to configure the NTP server.
16. Enter shut (shut is the default) to configure the default switch port interface to the shut (disabled) state.
17. Enter auto (off is the default) to configure the switch port trunk mode.
18. Enter yes (yes is the default) to configure the switchport mode F.
19. Enter off (off is the default) to configure the PortChannel auto-create state.
20. Enter deny (deny is the default) to deny a default zone policy configuration.
21. Enter no (no is the default) to disable a full zone set distribution.
22. Enter enhanced (basic is the default) to configure default-zone mode as enhanced.
23. Enter no (no is the default) if you are satisfied with the configuration.
24. Enter yes (yes is default) to use and save this configuration.

## DETAILED STEPS

**Step 1** Power on the switch. Switches in the Cisco MDS 9000 Family boot automatically.

**Step 2** Enter the new password for the administrator.

Enter the password for admin: **2004asdf\*1kjh18**

**Tip** If a password is trivial (short, easy-to-decipher), your password configuration is rejected. Be sure to configure a strong password as shown in the sample configuration. Passwords are case-sensitive.

**Step 3** Enter yes to enter the setup mode.

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

\*Note: setup is mainly used for configuring the system initially,

when no configuration is present. So setup always assumes system defaults and not the current system configuration values.

Press Enter at anytime to skip a dialog. Use ctrl-c at anytime to skip the remaining dialogs.

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

The setup utility guides you through the basic configuration process. Press **Ctrl-C** at any prompt to end the configuration process.

**Step 4** Enter yes (yes is the default) to enable secure password standard

Do you want to enforce secure password standard (yes/no): **yes**

**Note** You can also enable secure password standard using the **password strength-check** command. A secure password should contain characters from at least three of the classes: lower case letters, upper case letters, digits, and special characters.

**Step 5** Enter no (no is the default) if you do not wish to create additional accounts.

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

**Step 6** Configure the read-only or read-write SNMP community string.

a) Enter no (no is the default) to avoid configuring the read-only SNMP community string.

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

b) Enter yes (no is the default) to avoid configuring the read-write SNMP community string.

Configure read-write SNMP community string (yes/no) [n]: **yes**

c) Enter the SNMP community string.

SNMP community string: *snmp\_community*

**Step 7** Enter a name for the switch.

**Note** The switch name is limited to 32 alphanumeric characters. The default is switch.

Enter the switch name: *switch\_name*

**Step 8** Enter no (yes is the default) at the configuration prompt to configure out-of-band management.

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

**Step 9** Enter yes (yes is the default) to configure the default gateway.

Configure the default-gateway: (yes/no) [y]: **yes**

- a) Enter the default gateway IP address.

IP address of the default gateway: *default\_gateway*

- Step 10** Enter yes (no is the default) to configure advanced IP options such as in-band management, static routes, default network, DNS, and domain name.

Configure Advanced IP options (yes/no)? [n]: **yes**

- a) Enter yes (no is the default) at the in-band management configuration prompt.

Continue with in-band (VSAN1) management configuration? (yes/no) [no]: **yes**

Enter the VSAN 1 IPv4 address.

VSAN1 IPv4 address: *ip\_address*

Enter the IPv4 subnet mask.

VSAN1 IPv4 net mask: **subnet\_mask**

- b) Enter no (yes is the default) to enable IPv4 routing capabilities.

Enable ip routing capabilities? (yes/no) [y]: **no**

- c) Enter no (yes is the default) to configure a static route.

Configure static route: (yes/no) [y]: **no**

- d) Enter no (yes is the default) to configure the default network

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

- e) Enter no (yes is the default) to configure the DNS IPv4 address.

Configure the DNS IP address? (yes/no) [y]: **no**

- f) Enter no (no is the default) to skip the default domain name configuration.

Configure the default domain name? (yes/no) [n]: **no**

- Step 11** Enter no (no is the default) to disable the Telnet service.

Enable the telnet service? (yes/no) [y]: **no**

- Step 12** Enter yes (yes is the default) to enable the SSH service.

Enabled SSH service? (yes/no) [n]: **yes**

**Step 13** Enter the SSH key type.

```
Type the SSH key you would like to generate (dsa/rsa)? rsa
```

**Step 14** Enter the number of key bits within the specified range.

```
Enter the number of key bits? (768 to 2048): 2048
```

**Step 15** Enter no (no is the default) to configure the NTP server.

```
Configure NTP server? (yes/no) [n]: no
```

**Step 16** Enter shut (shut is the default) to configure the default switch port interface to the shut (disabled) state.

```
Configure default switchport interface state (shut/noshut) [shut]: shut
```

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

**Step 17** Enter auto (off is the default) to configure the switch port trunk mode.

```
Configure default switchport trunk mode (on/off/auto) [off]: auto
```

**Step 18** Enter yes (yes is the default) to configure the switchport mode F.

```
Configure default switchport mode F (yes/no) [n]: y
```

**Step 19** Enter off (off is the default) to configure the PortChannel auto-create state.

```
Configure default port-channel auto-create state (on/off) [off]: off
```

**Step 20** Enter deny (deny is the default) to deny a default zone policy configuration.

```
Configure default zone policy (permit/deny) [deny]: deny
```

Denies traffic flow to all members of the default zone.

**Note** If you are executing the setup script after issuing a **write erase** command, you must explicitly change the default zone policy to permit for VSAN 1 after finishing the script using the following commands:

```
switch# configure terminal  
switch(config)# zone default-zone permit vsan 1
```

**Step 21** Enter no (no is the default) to disable a full zone set distribution.

```
Enable full zoneset distribution (yes/no) [n]: no
```

Disables the switch-wide default for the full zone set distribution feature.

You see the new configuration. Review and edit the configuration that you have just entered.

**Note** If you are executing the setup script after issuing a **write erase** command, you must explicitly change the default zone policy to permit for VSAN 1 after finishing the script using the following commands:

```
switch# configure terminal
switch(config)# zoneset distribute full vsan 1
```

**Step 22** Enter enhanced (basic is the default) to configure default-zone mode as enhanced.

```
Configure default zone mode (basic/enhanced) [basic]: enhanced
```

Overrides the switch-wide default zone mode as enhanced.

**Note** If you are executing the setup script after issuing a **write erase** command, you must explicitly change the default zoning mode to enhanced for VSAN 1 after finishing the script using the following commands:

```
switch# configure terminal
switch(config)# zone mode enhanced vsan 1
```

**Note** If you are executing the setup script after issuing a **write erase** command, you must explicitly change the default zone policy to permit for VSAN 1 after finishing the script using the following commands:

```
switch# configure terminal
switch(config)# zoneset distribute full vsan 1
```

**Step 23** Enter no (no is the default) if you are satisfied with the configuration.

The following configuration will be applied:

```
username admin password admin_pass role network-admin
snmp-server community snmp_community rw
switchname switch
interface vsan1
  ip address ip_address subnet_mask
  no shutdown
  no ip default-gateway default_gateway
  no telnet server disable
  ssh key rsa 2048 forcessh server enablesystem default switchport shutdown
system default switchport trunk mode
autosystem default switchport mode F
no zone default-zone permit vsan 1-4093
no zoneset distribute full vsan 1-4093
system default zone mode enhanced
```

Would you like to edit the configuration? (yes/no) [n]: **n**

**Step 24** Enter yes (yes is default) to use and save this configuration.

```
Use this configuration and save it? (yes/no) [y]: yes
```

**Caution** If you do not save the configuration at this point, none of your changes are updated the next time the switch is rebooted. Type yes to save the new configuration. This ensures that the kickstart and system images are also automatically configured.

# Where to Go Next

To become more familiar with the CLI, continue to .

