

Installation and Boot

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Configuring the Switch with the CLI-Based Setup Program

This section provides a command-line interface (CLI)-based setup procedure for a switch. You must be connected to the switch through the console port to use the CLI. The ESS9300 auto detects whether the console port is RJ-45 or USB.

If using an RJ-45 console connection, configure with these parameters:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity
- None (flow control)

If you are connecting the switch USB-mini console port to a Windows-based PC for the first time, install a USB driver. If your laptop or PC warns you that you do not have the proper drivers to communicate with the router, you can obtain them from your computers manufacturer, or go here: https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers

Start the terminal-emulation program on the PC or the terminal. The program, frequently a PC application such as HyperTerminal or ProcommPlus, makes communication possible between the switch and your PC or terminal.

Connect power to the device. The PC or terminal displays the bootloader sequence. Press **Enter** to display the setup prompt.

Note USB console port is not supported on the Cisco ESS-9300-8X16T of the Curtiss-Wright VPX3-623. Only RJ45 based console port is supported.

Entering the Initial Configuration Information

To set up the switch, you need to complete the setup program, which runs automatically after the switch is powered on. You must assign an IP address and other configuration information necessary for the switch to communicate with the local routers and the Internet. This information is also required if you plan to use Web UI to configure and manage the switch.

IP Settings

You need this information from your network administrator before you complete the setup program:

- Switch IP address
- Subnet mask (IP netmask)
- Default gateway (router)
- Enable secret password
- Enable password

Completing the Setup Program

To complete the setup program and to create an initial configuration for the switch:

1. Enter **Yes** at these two prompts:

```
Would you like to enter the initial configuration dialog? [yes/no]: yes
At any point you may enter a question mark '?' for help.
Use ctrl-c to abort configuration dialog at any prompt.
Default settings are in square brackets '[]'.
Basic management setup configures only enough connectivity
for management of the system, extended setup will ask you
to configure each interface on the system.
Would you like to enter basic management setup? [yes/no]: yes
```

2. Enter a hostname for the switch, and press **Return**.

```
Enter host name [Switch]: host_name
```

3. Enter an enable secret password, and press **Return**.

   The password can be from 1 to 25 alphanumeric characters, can start with a number, is case sensitive, allows spaces, but ignores leading spaces. The secret password is encrypted, and the enable password is in plain text.

```
Enter enable secret: secret_password
```

4. Enter an enable password, and press **Return**.

```
Enter enable password: enable_password
```

5. Enter a virtual terminal (Telnet) password, and press **Return**.

   The password can be from 1 to 25 alphanumeric characters, is case sensitive, allows spaces, but ignores leading spaces.

```
Enter virtual terminal password: terminal-password
```

6. (Optional) Configure Simple Network Management Protocol (SNMP) by responding to the prompts. You can also configure SNMP later through the CLI, Device Manager, or the Cisco Network Assistant application. To configure SNMP later, enter **no**.

```
Configure SNMP Network Management? [no]: no
```

7. Enter the interface name (physical interface or VLAN name) of the interface that connects to the management network, and press **Return**. For this release, always use **vlan1** as that interface.

```
Current interface summary
Any interface listed with OK? value "NO" does not have a valid configuration
Interface IP-Address OK? Method Status Protocol
Vlan1 unassigned NO unset up down
TenGigabitEthernet1/1 unassigned YES unset down down
TenGigabitEthernet1/2 unassigned YES unset down down
TenGigabitEthernet1/3 unassigned YES unset down down
TenGigabitEthernet1/4 unassigned YES unset down down
TenGigabitEthernet1/5 unassigned YES unset down down
TenGigabitEthernet1/6 unassigned YES unset down down
TenGigabitEthernet1/7 unassigned YES unset down down
TenGigabitEthernet1/8 unassigned YES unset down down
TenGigabitEthernet1/9 unassigned YES unset down down
TenGigabitEthernet1/10 unassigned YES unset down down
Enter interface name used to connect to the
management network from the above interface summary: vlan1
Enter interface name used to connect to the
management network from the above interface summary: vlan1
```

8. Configure the interface by entering the switch IP address and subnet mask and pressing Return. The IP address and subnet masks shown here are examples.

```
Configuring interface Vlan1:
Configure IP on this interface? [yes]:
IP address for this interface: 10.1.1.2
Subnet mask for this interface [255.255.255.0] :
Class A network is 10.0.0.0, 8 subnet bits; mask is /24
```

9. This summary appears:

```
The following configuration command script was created:
hostname ESS9300
enable secret 9 $9$rkqtjJhIkZyANU$Ib4nfuxrpHBi.lixF.0Ir94k9XWYsW3nyF7Glmc6lkc
enable password cisco
line vty 0 15
password cisco
no snmp-server
!!
interface Vlan1
no shutdown
ip address 10.1.1.2 255.255.255.0
!
interface TenGigabitEthernet1/1
!
```

```
interface TenGigabitEthernet1/2
!
interface TenGigabitEthernet1/3
!
interface TenGigabitEthernet1/4
!
interface TenGigabitEthernet1/5
!
interface TenGigabitEthernet1/6
!
interface TenGigabitEthernet1/7
!
interface TenGigabitEthernet1/8
!
interface TenGigabitEthernet1/9
!
interface TenGigabitEthernet1/10
!
end
```

After you complete the setup program, the switch can run the default configuration that you created. If you want to change this configuration or want to perform other management tasks, use the CLI or WEBUI.

To use the CLI, enter commands at the Switch> prompt through the console port by using a terminal emulation program or through the network by using Telnet.

Upgrading the Switch Software

This section covers the various aspects of upgrading or downgrading the device software.

Finding the Software Version

The package files for the Cisco IOS XE software can be found on the system board flash device flash (flash:) or external SDFlash (sdflash:).

You can use the **show version** privileged EXEC command to see the software version that is running on your switch.



Note Although the **show version** output always shows the software image running on the switch, the model name shown at the end of this display is the factory configuration and does not change if you upgrade the software license.

You can also use the **dir** *filesystem:* privileged EXEC command to see the directory names of other software images that you might have stored in flash memory.

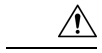
Software Images

The switch runs on Cisco IOS-XE with an initial release of 17.4.1. The switch uses a universal image type named ie9k_iosxe.<release>.SPA.bin.

Automatic Boot Loader Upgrade

When you upgrade from the existing release on your switch to a later or newer release for the first time, the boot loader may be automatically upgraded, based on the hardware version of the switch. If the boot loader is automatically upgraded, it will take effect on the next reload.

For subsequent Cisco IOS XE releases, if there is a new bootloader in that release, it may be automatically upgraded based on the hardware version of the switch when you boot up your switch with the new image for the first time.



Caution Do not power cycle your switch during the upgrade.

Scenario	Automatic Boot Loader Response

If you boot Cisco IOS XE the first time	Boot loader may be upgraded to version "7.1.5" for ESS-9300.
	`Checking Bootloader upgrade...`
	`…`
	`Bootloader upgrade successful`

Bundle Mode Upgrade

To upgrade the Cisco IOS XE software when the switch is running in bundle mode, follow these steps:

Procedure

Step 1 Download the bundle file to local storage media.

Step 2 Configure the **boot system** global configuration command to point to the bundle file.

Step 3 Reload the switch.

Example

Upgrading Cisco IOS XE Software Bundle Mode

This example shows the steps to upgrade the Cisco IOS XE software on a switch that is running in bundle mode. It shows using the **copy** command to copy the bundle file to flash:, configuring the boot system variable to point to the bundle file, saving a copy of the running configuration, and finally, reloading the switch.

```
Switch#copy scp: sdflash:
Address or name of remote host [10.106.224.22]?
Source username [xxxxx]?
Source filename []? $2/binos/linkfarm/iso1-petra/ie9k-universalk9.17.04.01.SPA.bin
Destination filename [ie9k-universalk9.17.04.01.SPA.bin]?
This is a Cisco managed device to be used only for authorized purposes.
Your use is monitored for security, asset protection, and policy compliance.


Password:
```

```
 Sending file modes: C0644 344345038 ie9k-universalk9.17.04.01.SPA.bin
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
344345038 bytes copied in 637.684 secs (539993 bytes/sec)

Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#no boot system
Switch(config)#boot system sdflash:ie9k-universalk9.17.04.01.SPA.bin
Switch(config)#end

Switch#write memory
*May 27 14:49:55.121: %SYS-5-CONFIG_I: Configured from console by console
Building configuration...
[OK]
Switch#s
*May 27 14:50:01.341: %SYS-6-PRIVCFG_ENCRYPT_SUCCESS: Successfully encrypted private config
 file

Switch#show boot
Current Boot Variables:
BOOT variable = sdflash:ie9k-universalk9.17.04.01.SPA.bin;

Boot Variables on next reload:
BOOT variable = sdflash:ie9k-universalk9.17.04.01.SPA.bin;
Config file = flash:/nvram_config
ENABLE_FLASH_PRIMARY_BOOT = no
MANUAL_BOOT variable = no
ENABLE_BREAK variable = yes

Switch#reload
Proceed with reload? [confirm]

*May 27 14:50:08.989: %SYS-5-RELOAD: Reload requested by console. Reload Reason: Reload
Command.
watchdog: watchdog0: watchdog did not stop!
reboot: Restarting system
```

Note SD Flash is not supported on the ESS-9300-8X16T.

Software Installation Commands

Summary of Software Installation Commands	
To install and activate the specified file, and to commit changes to be persistent across reloads—**install add file** *filename* [**activate commit**]	
add file tftp: *filename*	Copies the install file package from a remote location to the device and performs a compatibility check for the platform and image versions.
activate [**auto-abort-timer**]	Activates the file, and reloads the device. The **auto-abort-timer** keyword automatically rolls back image activation.
commit	Makes changes persistent over reloads.

Summary of Software Installation Commands	
remove	Deletes all unused and inactive software installation files.

Licensing

This section provides information about the licensing packages for features available on Cisco ESS9300 series switches.

License Levels

The Cisco ESS 9300 supports Network essential and Network-Advantage license.

Note Network Essentials license is the default license. It is permanent. A connection to the Smart Licensing server is not required if the switch will be deployed with a Network Essentials license.

Note Entering the command **license smart reservation** after the initial configuration prevents an erroneous message `Smart Licensing Status: UNREGISTERED/EVAL MODE` from appearing on your device.

ALT Boot

Cisco ESS-9300-8X16T of the Curtiss-Wright VPX3-623 boots with the emergency image when the ALT_BOOT pin is asserted by the carrier General Purpose Input/Output (GPIO).

The ALT_BOOT pin:

- assert only when the device is in ROMMON mode,
- triggers boot with the emergency IOS image once asserted, and
- does not trigger any action if the device is running with the IOS image.

Boot from the USB

The switch can be booted from configuration files located on the pluggable USB. Customized startup configuration files can be booted from IOS or from ROMMON.

Note The USB device In the Cisco ESS-9300-8X16T of the Curtiss-Wright VPX3-623 is **usbflash1:**

The Cisco ESS-9300-8X16T of the Curtiss-Wright VPX3-623 supports image boot via USB but does not support configuration boot from USB.

Booting from IOS

The following configuration steps need to be taken in order to boot from the USB.

To display the boot options:

```
switch(config)#boot config ?
  bootflash:  URL of the config file
  flash:      URL of the config file
  msata:      URL of the config file
  nvram:      URL of the config file
  usbflash0:  URL of the config file
  webui:      URL of the config file
```

The syntax for the boot command is:

boot config usbflash0:<*file name*>

For example:

```
switch(config)#boot config usbflash0:startup-config
switch(config)#
switch#write memory
Building configuration...
[OK]
*Feb 10 10:20:11.990: %SYS-2-PRIVCFG_ENCRYPT: Successfully encrypted private config file
```

The environment variable CONFIG_FILE in the following example confirms that the startup-config is set to boot from usbflash0.

```
switch#show boot
BOOT variable =
CONFIG_FILE variable = usbflash0:startup-config
BOOTLDR variable does not exist
Configuration register is 0x1820
Standby not ready to show bootvar
```

Booting from ROMMON

The following configuration steps need to be taken in order to boot from the USB.

From the ROMMON prompt, execute **set CONFIG_FILE=usbflash0:** <*filename*>

For example:

```
rommon 2 > set CONFIG_FILE=usbflash0:my_startupcfg
rommon 3 > sync
rommon 4 > set
PS1=rommon ! >
MCU_UPGRADE=SKIP
THRPUT=
LICENSE_BOOT_LEVEL=
RET_2_RTS=
MCP_STARTUP_TRACEFLAGS=00000000:00000000
BSI=0
RANDOM_NUM=1275114933
BOOT=flash:Jun5_1.SSA,12
RET_2_RCALTS=951454376
CONFIG_FILE=usbflash0:my_startupcfg
```

Continue booting the IOS image as usual from the ROMMON prompt.

Booting from the USB Feature Summary

- Once the CONFIG_FILE is set to a non-default value, the **nvram:startup-config** command is aliased to this new location.
- Any change made to the config file in usbflash will be reflected in nvram:startup-config as well.
- The EXEC command **erase nvram:startup-config** erases the contents of NVRAM, and deletes the file referenced by CONFIG_FILE variable.
- If the USB is unplugged after setting the **boot config usbflash0:** <*filename*> variable, then the day 0 default configuration will take effect.
- When the configuration is saved using the **copy system:running-config nvram:startup-config** command, the device saves a complete version of the configuration file to the location specified by the CONFIG_FILE environment variable, and a distilled version to NVRAM. A distilled version is one that does not contain access list information.

Emergency Recovery Installation



Note There is different terminology used when referring to the reset button depending on the product. The IE3x00 switches call this the Express Setup switch. Other products may refer to this as the Factory Default Switch. In either case, the functionality is the same.

If the other recovery methods fail, the switch has a trap door method that you can use in order to recover the system. You must have a terminal that is connected to port Gi1/3 of the switch that runs a TFTP server. Download a valid image file from CCO and store it in the root of the TFTP server.

It is likely that the switch is stuck at the **switch**: prompt. However, if you are in a boot loop, you can use the Express Setup switch on the front of the switch in order to break the cycle: hold the button for approximately <TBD> seconds, and the switch breaks the cycle and stops at the **switch**: prompt.

Complete these steps in order to perform an emergency recovery:

Step 1: Boot the emergency install image.

```
switch: switch: boot emgy0:<image-name>.SPA.bin
Booting golden bootloader...
Initializing disk drivers...
Initializing file systems...
**********************************************************
* Rom Monitor for ESS3300                                *
* Copyright (c) 2017-2018 by Cisco Systems, Inc.         *
* All rights reserved.                                   *
**********************************************************
* Version:  1.1.1
* Compiled: Sun 01-Jul-18 22:17 [RELEASE SOFTWARE]
* Boot Partition: qspi-golden-bootloader
* Reset Reason: Soft Reset
Loading "emgy0:ess3x00-universalk9.17.04.01.SPA.bin" to memory...
Verifying image "emgy0:ess3x00-universalk9.17.04.01.SPA.bin"...
Image passed digital signature verification
Checking for Bootloader upgrade...
```

```
Bootloader upgrade not required
SUP PL (profile: 1) configuration done successfully
<...>
Press RETURN to get started!
Switch>
```

Step 2: Configure an IP address on the switch. Additional details on IP configuration can be found here

```
switch(config-if)# ip address <ip-address> <subnet-mask>
```

Step 3: Ping the terminal that contains the TFTP server in order to test the connectivity:

```
switch> ping 192.168.2.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echoes to 192.168.2.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

Step 4: Copy the image via tftp

```
switch> copy tftp: //location/directory/<bundle_name> flash:
<...>
```

Step 5: Restart the system.