

Upgrading From Earlier Releases to Cisco IOS XE 17.10 and Later

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SD Flash to Flash

In this scenario:

- The switch is running a version of Cisco IOS XE 17.9.x or earlier and you want to upgrade to Cisco IOS XE 17.10.x or later.
- Cisco IOS XE is running from SD flash and 17.10 or later images should run from flash.
- After the procedure is complete, both the Cisco IOS XE image and the startup-config continue to boot from onboard flash.

Upgrade Procedure

1. Configure the following commands, and then save the configuration using the **write memory** command:
   a. no boot system
2. Sync the running-config from SD flash to flash.
3. Download the Cisco IOS XE 17.10 or later image and keep the image in flash.
4. Configure the following commands:
   a. no boot manual
   b. boot system flash:*your-switch*-universalk9.17.10.01.SPA.bin
   c. boot flash-primary

5. Reload the system.

After reloading, the switch performs a bootloader upgrade, then boots Cisco IOS XE 17.10 or later from flash.

Example

```
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#no boot system
Switch(config)#end
Switch#wr
Building configuration...
[OK]
Switch#
Switch#sync sdflash: flash: skip ios-image
BOOT Image: sdflash:ie3x00-universalk9.17.09.02.SPA.bin

Skip file IOS-image : [OK]
Verifying src nvram_config : [OK]
Verifying dst nvram_config file : [OK]
Verifying src cfg.dat : [OK]
Verifying dst cfg.dat file : [OK]
Skip file private-KS1 : [OK]
Syncing nvram_config file from sdflash to flash :
Copying vlan configure file from sdflash:vlan.dat to flash:vlan.dat : [OK]
Syncing cfg.dat file from sdflash to var : [OK]
Switch#dir flash:ie3x00-universalk9.17.10.01.SPA.bin
Directory of flash:/ie3x00-universalk9.17.10.01.SPA.bin

86813   -rw-        493968913  Feb 28 2023 01:22:24 +00:00
ie3x00-universalk9.17.10.01.SPA.bin

1651314688 bytes total (995946496 bytes free)
Switch#dir flash:
Directory of flash:/

86883   -rw-              616  Feb 28 2023 01:41:04 +00:00  vlan.dat
86772   -rw-         33554432  Feb 28 2023 01:41:04 +00:00  nvram_config
86777   drwx             4096  Feb 28 2023 01:39:20 +00:00  .installer
86810   drwx             4096  Feb 28 2023 01:38:49 +00:00  dc_profile_dir
86776   -rw-            46604  Feb 28 2023 01:36:15 +00:00  pnap.dat
86812   -rw-         33554432  Feb 28 2023 01:36:14 +00:00  nvram_config_bkup
86815   drwx             4096  Feb 28 2023 01:32:23 +00:00  EDSrockwell
86959   drwx             4096  Feb 28 2023 01:32:22 +00:00  ProfinetGSD
86813   -rw-        493968913  Feb 28 2023 01:22:24 +00:00
ie3x00-universalk9.17.10.01.SPA.bin
23670   drwx             4096  Feb 28 2023 00:31:32 +00:00  pnp-tech
86894   drwx             4096  Feb 14 2023 00:00:00 +00:00  .product_analytics
86770   drwx             4096  Feb 13 2023 02:43:48 +00:00  .prst_sync
86783   drwx             4096  Feb 13 2023 02:35:42 +00:00  .rollback_timer
86903   -rw-             4988  Feb 13 2023 02:32:03 +00:00  packages.conf
86786   drwx             4096  Dec 17 2022 00:56:13 +00:00  .ssh
23667   drwx             4096  Dec 16 2022 03:21:19 +00:00  pnp-info
86774   drwx             4096  Dec 16 2022 03:19:00 +00:00  .dbpersist
47331   drwx             4096  Dec 12 2022 04:35:34 +00:00  eem
86884   drwx             4096  Dec 12 2022 04:35:33 +00:00  managed
86881   drwx             4096  Dec 12 2022 04:35:30 +00:00  onep
86814   drwx             4096  Dec 12 2022 04:34:51 +00:00  EDScisco
86809   drwx             4096  Dec 12 2022 04:34:51 +00:00  gs_script
86793   drwx             4096  Dec 12 2022 04:34:51 +00:00  tech_support
86782   drwx             4096  Dec 12 2022 04:34:34 +00:00  core
86781   drwx             4096  Dec 12 2022 04:34:08 +00:00  cflow
86780   drwx             4096  Dec 12 2022 04:34:08 +00:00  pcap
```

```
86779   -rwx               0  Dec 12 2022 04:34:08 +00:00  mode_event_log
86778   drwx            4096  Dec 12 2022 04:34:08 +00:00  SHARED-IOX

1651314688 bytes total (995946496 bytes free)
Switch#
Switch#
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#boot sys flash:ie3x00-universalk9.17.10.01.SPA.bin
Switch(config)#no boot manual
Switch(config)#boot flash-primary
Switch(config)#end
Switch#wr
Building configuration...
[OK]
Switch#
Switch#sh boot
Current Boot Variables:
BOOT variable = flash:ie3x00-universalk9.17.10.01.SPA.bin;

Boot Variables on next reload:
BOOT variable does not exist
Config file = sdflash:/nvram_config
ENABLE_FLASH_PRIMARY_BOOT = yes
MANUAL_BOOT variable = no
ENABLE_BREAK variable = yes
Switch#reload
Proceed with reload? [confirm]

*Feb 28 01:43:00.864: %SYS-5-RELOAD: Reload requested by console. Reload Reason: Reload
Command.
watchdog: watchdog0: watchdog did not stop!
reboot: Restarting system

Initializing disk drivers...
Initializing file systems...

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* Version:  7.1.14
* Compiled: Wed 20-Apr-22 22:19 [RELEASE SOFTWARE]
* Boot Partition: qspi-upgrade-bootloader
* Reset Reason: Soft Reset

WARNING: DEV key installed

Loading "flash:ie3x00-universalk9.17.10.01.SPA.bin" to memory...
Verifying image "flash:ie3x00-universalk9.17.10.01.SPA.bin"...
Image passed digital signature verification
Checking for Bootloader upgrade...
New version = 8.1.2, Current version = 7.1.14
Erasing 4063232 bytes ..............................................................
Writing 932416 bytes ..............
Verifying 932416 bytes ..............
Erasing 4063232 bytes ..............................................................
Writing 936512 bytes ..............
Verifying 936512 bytes ..............
Bootloader upgrade successful
Resetting...
```

```
Initializing disk drivers...
Initializing file systems...

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* Version:  8.1.2
* Compiled: Fri 09-Sep-22 09:39 [RELEASE SOFTWARE]
* Boot Partition: qspi-upgrade-bootloader
* Reset Reason: Soft Reset

WARNING: DEV key installed

Loading "flash:ie3x00-universalk9.17.10.01.SPA.bin" to memory...
Verifying image "flash:ie3x00-universalk9.17.10.01.SPA.bin"...
Image passed digital signature verification
Checking for Bootloader upgrade...
Bootloader upgrade not required
SUP PL (profile: 1) configuration done successfully
RTOS (profile: 1) boot successful

Taking BP out of reset
Taking LC1 out of reset

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Software feature.



cisco IE-3200-8P2S (ARM) processor (revision V01) with 429823K/6147K bytes of memory.
Processor board ID FOC2213V1QC
1 Virtual Ethernet interface
10 Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
1968556K bytes of physical memory.
523264K bytes of crashinfo at crashinfo:.
1638400K bytes of Flash at flash:.
3883008K bytes of sdflash at sdflash:.

Base Ethernet MAC Address          : f8:b7:e2:e5:25:80
Motherboard Assembly Number        : 73-101446-05
Motherboard Serial Number          : FOC221223CJ
Model Revision Number              : V01
Motherboard Revision Number        : 5
Model Number                       : IE-3200-8P2S
System Serial Number               : FOC2213V1QC
Top Assembly Part Number           : 68-101575-01
Top Assembly Revision Number       : 26
System FPGA version                : 0.89.2
CIP Serial Number                  : 0x4AE52580
SKU Brand Name                     : Cisco



Press RETURN to get started!
```

Flash to Flash

In this scenario:

- The switch is running a version of Cisco IOS XE 17.9.x or earlier and you want to upgrade to Cisco IOS XE 17.10.x or later.
- Cisco IOS XE is running from flash and 17.10 or later images should run from flash.
- After the procedure is complete, both the Cisco IOS XE image and the startup-config continue to boot from onboard flash.

Upgrade Procedure

1. Download the Cisco IOS XE 17.10 or later image and keep the image in flash.
2. Configure the following commands:
   a. no boot system

b. no boot manual

c. boot flash-primary

d. boot system flash:*your-switch*-universalk9.17.10.01.SPA.bin

3. Reload the system.

After reloading, the switch performs a bootloader upgrade, then boots Cisco IOS XE 17.10 or later from flash.

Example

```
Switch#sh boot
Current Boot Variables:
BOOT variable = flash:ie3x00-universalk9.17.10.01.SPA.bin;

Boot Variables on next reload:
BOOT variable = flash:ie3x00-universalk9.17.10.01.SPA.bin;
Config file = flash:/nvram_config
ENABLE_FLASH_PRIMARY_BOOT = yes
MANUAL_BOOT variable = no
ENABLE_BREAK variable = yes
Switch#relo
Switch#reload
Proceed with reload? [confirm]

*Feb 28 03:15:04.231: %SYS-5-RELOAD: Reload requested by console. Reload Reason: Reload
Command.
watchdog: watchdog0: watchdog did not stop!
reboot: Restarting system

Initializing disk drivers...
Initializing file systems...
SD Card is disabled

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* Version:  7.1.14
* Compiled: Wed 20-Apr-22 22:19 [RELEASE SOFTWARE]
* Boot Partition: qspi-upgrade-bootloader
* Reset Reason: Soft Reset

WARNING: DEV key installed

Loading "flash:ie3x00-universalk9.17.10.01.SPA.bin" to memory...
Verifying image "flash:ie3x00-universalk9.17.10.01.SPA.bin"...
Image passed digital signature verification
Checking for Bootloader upgrade...
New version = 8.1.2, Current version = 7.1.14
Erasing 4063232 bytes ..............................................................
Writing 932416 bytes ..............
Verifying 932416 bytes ..............
Erasing 4063232 bytes ..............................................................
Writing 936512 bytes ..............
Verifying 936512 bytes ..............
Bootloader upgrade successful
Resetting...
```

```
Initializing disk drivers...
Initializing file systems...
SD Card is disabled

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* Version:  8.1.2
* Compiled: Fri 09-Sep-22 09:39 [RELEASE SOFTWARE]
* Boot Partition: qspi-upgrade-bootloader
* Reset Reason: Soft Reset

WARNING: DEV key installed

Loading "flash:ie3x00-universalk9.17.10.01.SPA.bin" to memory...
Verifying image "flash:ie3x00-universalk9.17.10.01.SPA.bin"...
Image passed digital signature verification
Checking for Bootloader upgrade...
Bootloader upgrade not required
SUP PL (profile: 1) configuration done successfully
RTOS (profile: 1) boot successful

Taking BP out of reset
Taking LC1 out of reset

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cisco IE-3200-8P2S (ARM) processor (revision V01) with 429823K/6147K bytes of memory.
Processor board ID FOC2213V1QC
1 Virtual Ethernet interface
10 Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
1968556K bytes of physical memory.
523264K bytes of crashinfo at crashinfo:.
1638400K bytes of Flash at flash:.

Base Ethernet MAC Address          : f8:b7:e2:e5:25:80
Motherboard Assembly Number        : 73-101446-05
Motherboard Serial Number          : FOC221223CJ
Model Revision Number              : V01
Motherboard Revision Number        : 5
Model Number                       : IE-3200-8P2S
System Serial Number               : FOC2213V1QC
Top Assembly Part Number           : 68-101575-01
Top Assembly Revision Number       : 26
System FPGA version                : 0.89.2
CIP Serial Number                  : 0x4AE52580
SKU Brand Name                     : Cisco



Press RETURN to get started!
```

SD Flash to SD Flash

In this scenario:

- The switch is running a version of Cisco IOS XE 17.9.x or earlier and you want to upgrade to Cisco IOS XE 17.10.x or later.
- Both 17.9 or earlier images and 17.10 or later images should run from SD flash bundle mode.
- After the procedure is complete, both the Cisco IOS XE image and the startup-config continue to boot from onboard flash.

Upgrade Procedure

1. Copy the running-config to flash using the command **sync**.
2. Download the Cisco IOS XE 17.10 or later image and keep the image in SD flash.
3. Delete all other Cisco IOS XE images from SD flash and flash.

4. Unset the current boot path from SD flash.
5. Reload the system.

After reloading, the switch performs a bootloader upgrade, then boots Cisco IOS XE 17.10 or later from SD flash in bundle mode.

Example

```
Switch#sync sdflash: flash: skip ios-image
BOOT Image: sdflash:ie3x00-universalk9.17.09.02.SPA.bin

Skip file IOS-image : [OK]
Verifying src nvram_config : [OK]
Verifying dst nvram_config file : [OK]
Verifying src cfg.dat : [OK]
Verifying dst cfg.dat file : [OK]
Skip file private-KS1 : [OK]
Syncing nvram_config file from sdflash to flash :
Copying vlan configure file from sdflash:vlan.dat to flash:vlan.dat : [OK]
Syncing cfg.dat file from sdflash to var : [OK]
Switch#
Switch#
Switch#dir sdfl
Switch#dir sdflash:
Directory of sdflash:/

191     -rwx         33554432  Feb 28 2023 03:41:14 +00:00  nvram_config_bkup
217     -rwx         33554432  Feb 28 2023 03:41:12 +00:00  nvram_config
207     -rwx        493968913  Feb 28 2023 03:39:16 +00:00
ie3x00-universalk9.17.10.01.SPA.bin

3972005888 bytes total (1891991552 bytes free)
Switch#dir flash:
Directory of flash:/

86883   -rw-              616  Feb 28 2023 03:42:18 +00:00  vlan.dat
86772   -rw-         33554432  Feb 28 2023 03:42:18 +00:00  nvram_config
86777   drwx             4096  Feb 28 2023 03:41:43 +00:00  .installer
86810   drwx             4096  Feb 28 2023 03:34:27 +00:00  dc_profile_dir
86776   -rw-            46604  Feb 28 2023 03:32:18 +00:00  pnap.dat
86815   drwx             4096  Feb 28 2023 03:31:05 +00:00  EDSrockwell
86959   drwx             4096  Feb 28 2023 03:31:04 +00:00  ProfinetGSD
23670   drwx             4096  Feb 28 2023 00:31:32 +00:00  pnp-tech
86894   drwx             4096  Feb 14 2023 00:00:00 +00:00  .product_analytics
86770   drwx             4096  Feb 13 2023 02:43:48 +00:00  .prst_sync
86783   drwx             4096  Feb 13 2023 02:35:42 +00:00  .rollback_timer
86903   -rw-             4988  Feb 13 2023 02:32:03 +00:00  packages.conf
86786   drwx             4096  Dec 17 2022 00:56:13 +00:00  .ssh
23667   drwx             4096  Dec 16 2022 03:21:19 +00:00  pnp-info
86774   drwx             4096  Dec 16 2022 03:19:00 +00:00  .dbpersist
47331   drwx             4096  Dec 12 2022 04:35:34 +00:00  eem
86884   drwx             4096  Dec 12 2022 04:35:33 +00:00  managed
86881   drwx             4096  Dec 12 2022 04:35:30 +00:00  onep
86814   drwx             4096  Dec 12 2022 04:34:51 +00:00  EDScisco
86809   drwx             4096  Dec 12 2022 04:34:51 +00:00  gs_script
86793   drwx             4096  Dec 12 2022 04:34:51 +00:00  tech_support
86782   drwx             4096  Dec 12 2022 04:34:34 +00:00  core
86781   drwx             4096  Dec 12 2022 04:34:08 +00:00  cflow
86780   drwx             4096  Dec 12 2022 04:34:08 +00:00  pcap
86779   -rwx                0  Dec 12 2022 04:34:08 +00:00  mode_event_log
86778   drwx             4096  Dec 12 2022 04:34:08 +00:00  SHARED-IOX
```

```
1651314688 bytes total (1524002816 bytes free)
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#no boo manual
Switch(config)#no boo sys
Switch(config)#no boot fl
Switch(config)#no boot flash-primary
Switch(config)#end
Switch#wr mem

*Feb 28 03:42:51.376: %SYS-5-CONFIG_I: Configured from console by console
Building configuration...
[OK]
Switch#sh boot
*Feb 28 03:43:09.776: %SYS-6-PRIVCFG_ENCRYPT_SUCCESS: Successfully encrypted private config
 file
Current Boot Variables:
BOOT variable does not exist

Boot Variables on next reload:
BOOT variable =
Config file = sdflash:/nvram_config
ENABLE_FLASH_PRIMARY_BOOT = no
MANUAL_BOOT variable = no
ENABLE_BREAK variable = yes
Switch#reload
Proceed with reload? [confirm]

*Feb 28 03:43:18.517: %SYS-5-RELOAD: Reload requested by console. Reload Reason: Reload
Command.
watchdog: watchdog0: watchdog did not stop!
reboot: Restarting system

Initializing disk drivers...
Initializing file systems...

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* Boot Partition: qspi-upgrade-bootloader
* Reset Reason: Soft Reset

WARNING: DEV key installed

Loading "sdflash:/ie3x00-universalk9.17.10.01.SPA.bin" to memory...
Verifying image "sdflash:/ie3x00-universalk9.17.10.01.SPA.bin"...
Image passed digital signature verification
Checking for Bootloader upgrade...
New version = 8.1.2, Current version = 7.1.14
Erasing 4063232 bytes ..............................................................
Writing 932416 bytes ..............
Verifying 932416 bytes ..............
Erasing 4063232 bytes ..............................................................
Writing 936512 bytes ..............
Verifying 936512 bytes ..............
Bootloader upgrade successful
Resetting...
▒
Initializing disk drivers...
```

```
Initializing file systems...

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* Version:  8.1.2
* Compiled: Fri 09-Sep-22 09:39 [RELEASE SOFTWARE]
* Boot Partition: qspi-upgrade-bootloader
* Reset Reason: Soft Reset

WARNING: DEV key installed

Loading "sdflash:/ie3x00-universalk9.17.10.01.SPA.bin" to memory...
Verifying image "sdflash:/ie3x00-universalk9.17.10.01.SPA.bin"...
Image passed digital signature verification
Checking for Bootloader upgrade...
Bootloader upgrade not required
SUP PL (profile: 1) configuration done successfully
RTOS (profile: 1) boot successful

Taking BP out of reset
Taking LC1 out of reset

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responsibility to monitor your usage of any such term Software feature to
ensure that your systems and networks are prepared for a shutdown of the
Software feature.


% Failed to initialize backup nvram


cisco IE-3200-8P2S (ARM) processor (revision V01) with 429823K/6147K bytes of memory.
Processor board ID FOC2213V1QC
1 Virtual Ethernet interface
10 Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
1968552K bytes of physical memory.
523264K bytes of crashinfo at crashinfo:.
1638400K bytes of Flash at flash:.
3883008K bytes of sdflash at sdflash:.

Base Ethernet MAC Address          : f8:b7:e2:e5:25:80
Motherboard Assembly Number        : 73-101446-05
Motherboard Serial Number          : FOC221223CJ
Model Revision Number              : V01
Motherboard Revision Number        : 5
Model Number                       : IE-3200-8P2S
System Serial Number               : FOC2213V1QC
Top Assembly Part Number           : 68-101575-01
Top Assembly Revision Number       : 26
System FPGA version                : 0.89.2
CIP Serial Number                  : 0x4AE52580
SKU Brand Name                     : Cisco



Press RETURN to get started!
```

Flash to SD Flash

In this scenario:

- The switch is running a version of Cisco IOS XE 17.9.x or earlier and you want to upgrade to Cisco IOS XE 17.10.x or later.
- Cisco IOS XE 17.9.x or earlier is running from flash and Cisco IOS XE 17.10 or later images should run from SD flash.
- After the procedure is complete, Cisco IOS XE image boots from SD flash, but the startup-config is read from onboard flash,



Important This scenario is not a recommended.

Upgrade Procedure

1. Download the Cisco IOS XE 17.10 or later image and keep the image in SD flash.
2. Configure the following commands:
   a. no boot system
   b. no boot manual
   c. no boot flash-primary
3. Delete all other bootable image files from SD flash, except for the Cisco IOS XE 17.10 image.
4. Reload the system.

The switch performs a bootloader upgrade, then boots Cisco IOS XE 17.10 or later from SD flash.

Example

```
Switch(config)#no boo sys
Switch(config)#no boo manu
Switch(config)#no boo flash-primary
Switch(config)#end
Switch#wr mem

*Feb 28 04:17:31.637: %SYS-5-CONFIG_I: Configured from console by console
Building configuration...
[OK]
Switch#
*Feb 28 04:17:43.168: %SYS-6-PRIVCFG_ENCRYPT_SUCCESS: Successfully encrypted private config
 file
Switch#relo
Switch#reload
Proceed with reload? [confirm]

*Feb 28 04:17:51.460: %SYS-5-RELOAD: Reload requested by console. Reload Reason: Reload
Command.
watchdog: watchdog0: watchdog did not stop!
reboot: Restarting system

Initializing disk drivers...
Initializing file systems...

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* Version:  7.1.14
* Compiled: Wed 20-Apr-22 22:19 [RELEASE SOFTWARE]
* Boot Partition: qspi-upgrade-bootloader
* Reset Reason: Soft Reset

WARNING: DEV key installed

Loading "sdflash:/ie3x00-universalk9.17.10.01.SPA.bin" to memory...
Verifying image "sdflash:/ie3x00-universalk9.17.10.01.SPA.bin"...
Image passed digital signature verification
Checking for Bootloader upgrade...
New version = 8.1.2, Current version = 7.1.14
```

```
Erasing 4063232 bytes ..............................................................
Writing 932416 bytes ..............
Verifying 932416 bytes ..............
Erasing 4063232 bytes ..............................................................
Writing 936512 bytes ..............
Verifying 936512 bytes ..............
Bootloader upgrade successful
Resetting...
▒
Initializing disk drivers...
Initializing file systems...

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* Version:  8.1.2
* Compiled: Fri 09-Sep-22 09:39 [RELEASE SOFTWARE]
* Boot Partition: qspi-upgrade-bootloader
* Reset Reason: Soft Reset

WARNING: DEV key installed

Loading "sdflash:/ie3x00-universalk9.17.10.01.SPA.bin" to memory...
Verifying image "sdflash:/ie3x00-universalk9.17.10.01.SPA.bin"...
Image passed digital signature verification
Checking for Bootloader upgrade...
Bootloader upgrade not required
SUP PL (profile: 1) configuration done successfully
RTOS (profile: 1) boot successful

Taking BP out of reset
Taking LC1 out of reset

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           170 West Tasman Drive
           San Jose, California 95134-1706



Cisco IOS Software [Dublin], IE3x00 Switch Software (IE3x00-UNIVERSALK9-M), Version 17.10.1,
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Compiled Tue 29-Nov-22 16:19 by mcpre


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cisco IE-3200-8P2S (ARM) processor (revision V01) with 429823K/6147K bytes of memory.
Processor board ID FOC2213V1QC
1 Virtual Ethernet interface
10 Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
1968556K bytes of physical memory.
523264K bytes of crashinfo at crashinfo:.
1638400K bytes of Flash at flash:.
3883008K bytes of sdflash at sdflash:.

Base Ethernet MAC Address          : f8:b7:e2:e5:25:80
Motherboard Assembly Number        : 73-101446-05
Motherboard Serial Number          : FOC221223CJ
Model Revision Number              : V01
Motherboard Revision Number        : 5
Model Number                       : IE-3200-8P2S
System Serial Number               : FOC2213V1QC
Top Assembly Part Number           : 68-101575-01
Top Assembly Revision Number       : 26
System FPGA version                : 0.89.2
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SKU Brand Name                     : Cisco



Press RETURN to get started!
```