

SOP: Installing a Boot Image on a Cisco Switch With No Image

By Andrew Boakye :)

When to use this

The switch is stuck at a ROMMON/loader prompt with no working boot image — you'll see something like `No bootable image found!` or a bare `rommon 1 >` prompt with nothing to boot. This walks you through booting the switch from a USB drive and copying that image onto the switch permanently. Once it boots clean, run the normal reset/wipe script if the switch is being redeployed — this SOP only gets it booting again.

Before you start

- USB drive must be **FAT32** formatted. exFAT/NTFS will show as "not formatted" and won't work.
- Console cable connected, SecureCRT open, 9600 8N1.
- You need the right image file for this exact switch model — see below.

How to break into ROMMON/loader

Send **Ctrl+C** in the first few seconds after power-on/reload, before IOS starts loading. That's it — don't press the physical UID button on the switch, that only turns on the blue locator light so someone can find the unit in a rack. It does nothing for booting.

How to find the right image file

USB drives are organized differently from one to the next, so don't trust folder names. Instead:

1. **Look at the switch model** — either the label on the switch itself, or the text printed on the console right when it powers on (before you break in). Example: WS-C4500X-16, N9K-C9348GC-FXP, WS-C2960X-24TS-L.
2. **Match that model to a filename**, like this:

Switch model	Image filename starts with
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WS-C2960X / 2960S	`c2960x-universalk9-mz...`
WS-C4500X-16	`cat4500e-universalk9...`
WS-C3850 / WS-C3650 / WS-C3750X	`cat3k_caa-universalk9...`
C9200 / C9200L	`c9200-universalk9...`
N9K-C93xx (Nexus 9000)	`nxos.<version>.bin`

Example: if the switch says WS-C4500X-16, you're looking for a file named something like cat4500e-universalk9.SPA.03.06.07.E.152-2.E7.bin.

3. **Check the whole USB drive**, not just one folder — use `dir` and look around if the first folder you check doesn't have it.
4. Pick the k9 version of the file (not the non-k9 one) unless told otherwise — k9 has full SSH/encryption support.
5. After copying, double check the file size on the switch matches the file size on the USB. A mismatch means a bad copy.

Steps by switch type

2960X/2960S and 4500-X (confirmed working on 4500-X)

These boot from one single .bin file, so this is the simplest case.

6. At the ROMMON prompt, check what's on the USB. Images are usually inside a folder, not sitting at the root — dig in until you find them:

```
dir usb0:
dir usb0:SWITCHES
dir usb0:SWITCHES/C4500
```

7. Boot from the USB directly (don't copy yet). This is a real working example from a live recovery — full path, filename and all:

```
boot usb0:SWITCHES/C4500/cat4500e-universalk9.SPA.03.06.07.E.152-2.E7.bin
```

8. Once it boots up to a Switch> prompt, go to enable mode and copy the image onto the switch's internal storage so it boots without the USB next time. Move into the folder first with `cd` so the copy command itself stays short — long pasted commands can get cut off and error out

(copy usb0:SWITCHES/C4500/cat4500e-...bin bootflash: pasted as one long

line is what threw an "Invalid input detected" error on us):

```
enable
cd usb0:SWITCHES/C4500
copy cat4500e-universalk9.SPA.03.06.07.E.152-2.E7.bin bootflash:
```

Press Enter to accept the default filename when it asks.

If you'd rather not cd first, the full-path version does work as long

as it's not mangled by pasting — this is the exact command that worked:

```
copy usb0:SWITCHES/C4500/cat4500e-universalk9.SPA.03.06.07.E.152-2.E7.bin
bootflash:
```

9. Check it copied correctly:

```
dir bootflash:
```

10. Point the switch at the new image and reload to confirm it boots on its

own, without the USB. boot system only works inside config mode, not

directly at the Switch# prompt — typing it straight from enable mode

throws "Invalid input detected":

```
configure terminal
boot system bootflash:cat4500e-universalk9.SPA.03.06.07.E.152-2.E7.bin
end
write memory
reload
```

11. Once it boots clean, pull the USB. Run the wipe script if needed.

4500-X specific: if reload/boot acts weird even with a good image, check

for VSS mode — type unset VS_SWITCH_NUMBER at ROMMON.

Nexus 9000 (not yet tested live — confirm each step, update this after)

Nexus uses a loader > prompt instead of ROMMON, and it's much more basic —

it can boot and dir, but it **can't copy files**. You have to boot first,

then copy once you're in the full OS.

12. Check the USB (Nexus usually calls it usb1:, not usb0:):

```
dir usb1:
```

13. Boot from it:

```
boot usb1:nxos.7.0.3.I7.5.bin
```

14. Once it's fully booted, copy the image to the switch's storage:

```
copy usb1:nxos.7.0.3.I7.5.bin bootflash: vrf management
```

15. Set it to boot from that file and save:

```
boot nxos bootflash:nxos.7.0.3.I7.5.bin  
copy running-config startup-config
```

16. Reload to confirm it boots on its own, then pull the USB.

3650 / 3850 / 3750X / 9200 / 9300 (confirmed working on 3650)

These use "packages" instead of one single image file, so a plain copy isn't

always enough. Also note: on some of these, the bootloader is the newer

switch: prompt instead of classic rommon 1 >, and the USB device may be

named usbflash0: instead of usb0: — if `dir usb0:` fails, run `dir` by

itself to see what filesystems are actually registered.

17. Check the USB (adjust the device name if needed — see note above):

```
dir usbflash0:
```

18. Boot from it. Real working example from a live recovery on a

WS-C3650-48TS:

```
boot usbflash0:C3650_cat3k_caa-universalk9.SPA.03.06.05.E.152-2.E5.bin
```

19. Once booted, check if the switch is in "install mode" or "bundle mode":

```
show version
```

Look at the ports/mode table near the bottom — it'll say BUNDLE or

INSTALL in the Mode column.

20. **If install mode**, use this (don't use plain copy — it won't set

things up right):

```
install add file usbflash0:C3650_cat3k_caa-universalk9.SPA.03.06.05.E.152-  
2.E5.bin activate commit
```

If bundle mode (this is what the 3650 above turned out to be), plain

copy works. Remember `boot system` only works inside config mode, not

directly at the `#` prompt:

```
copy usbflash0:C3650_cat3k_caa-universalk9.SPA.03.06.05.E.152-2.E5.bin flash:
dir flash:
configure terminal
boot system flash:C3650_cat3k_caa-universalk9.SPA.03.06.05.E.152-2.E5.bin

end

write memory

reload
```

21. Reload to confirm it boots on its own, then pull the USB.

Known issues to watch for

- **Switch won't boot ANY image, even a known-good one from USB.** Probably

a hardware problem (bad flash/USB port/supervisor), not something you can

fix from software. Don't keep retrying — escalate to RMA.

- **Bootloader crashes/throws a bus error just reading the USB drive**

(e.g. `* Bus Error (Load) Exception * right on a dir` command).`

This can be the USB drive itself, not the switch — some USB drives just

don't work with certain switches/bootloaders. Try a different USB drive

(and a different port if there's more than one) and a full power cycle

before assuming it's a hardware fault on the switch. If you've tried

multiple different USB drives on this same switch and none of them are

even recognized, stop troubleshooting it — set it aside and move on to

the next device instead of sinking more time into one unit.

- **Bootloader uses a different name for the USB device.** Not every

platform calls it `usb0:` — this varies (`usb1:`, `usbflash0:`, etc). If

`dir usb0:` fails, run `dir` by itself to list the registered filesystems

and find the right name before trying again.

- **Wrong image for the model.** Easy mistake since USB folders aren't organized the same way every time. Shows up as a refusal to boot or a signature/compatibility error. Double-check the model-to-filename match before booting.
- **"RSA signature verification failed."** Almost always means the file got corrupted during copy, not that the image itself is bad. Redo the copy and check the file size again.
- **USB says "not formatted."** It's exFAT or NTFS. Reformat it as FAT32 (Windows defaults to exFAT on big drives — you have to pick FAT32 manually).
- **"Invalid input detected" on a long copy command.** The command was probably too long and wrapped weirdly when pasted into the console. Use `cd` to shorten the path, then run a short copy command.
- **"Invalid input detected" on `boot system ...`.** `boot system only` works inside config mode (`configure terminal`), not directly at the `>` or `#` prompt. Run `configure terminal` first, then `boot system ...`, then `end`.
- **4500-X reload acts strange even with a good image.** Check for VSS mode — `unset VS_SWITCH_NUMBER` at ROMMON.
- **N9K reboots to a full POST reset on its own.** Happens if recovery commands are sent too fast back-to-back — pause a few seconds between commands.
- **`dir` shows cut-off/truncated filenames.** Some prompts shorten long filenames in the listing. If unsure which file it is, type the full name out manually instead of trusting the truncated one.