

Arista DCS-7050QQX-32-R

Complete Flash, Boot, and ZeroTouch Recovery Process

Academic Technical Report

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1. Summary of the Issue

The Arista **DCS-7050QX-32-R** switch entered a failure state where:

- It could not execute `write mem`.
- Reported `No space left on device`.
- ZeroTouch remained active even after disabling it.
- The filesystem `/mnt/flash` was held open by background processes.
- Corrupted FAT recovery files (`FSCK*.REC`) were present.
- Multiple empty `startup-config` files existed.
- The device frequently booted directly into the **About Shell**.

This document presents **all commands used**, in chronological order, separated by:

- EOS CLI mode
- Bash / Linux shell
- About bootloader

and a complete academic explanation of the diagnosis and final recovery.

2. Device Information

Model:	Arista DCS-7050QX-32-R
Serial:	JPE15062089
EOS:	4.21.2.3F-2GB
MAC:	001c.73b3.8eed

3. Commands Executed in EOS (Normal CLI Mode)

3.1 ZeroTouch verification

```
show zerotouch
```

3.2 Failed attempts to save configuration

```
write mem
% Error copying system:/running-config to flash:/startup-config
% (No space left on device)

copy running-config startup-config
copy ru st
```

3.3 Commands used to disable ZeroTouch

```
configure terminal
no zerotouch enable
no management zerotouch
no zerotouch onboarding
end
```

3.4 Erasing damaged startup configuration

```
write erase startup-config
write mem
```

4. Commands Executed in Bash (Internal Linux Shell)

4.1 Accessing bash and becoming root

```
bash
sudo su
```

4.2 Checking flash mount status and space

```
df -h
mount | grep flash
ls -lAh /mnt/flash
```

4.3 Cleaning crash dumps and logs

```
rm -f /var/core/*  
rm -f /var/log/*gz  
rm -f /var/log/*.[0-9]
```

4.4 Detecting and removing corrupted FAT recovery files

```
ls -lh /mnt/flash/*.REC  
rm -f FSCK0000.REC  
rm -f FSCK0001.REC
```

4.5 Filesystem repair using fsck

```
umount -l /mnt/flash  
fsck.vfat -a /dev/sda1  
fsck.vfat -f -v /dev/sda1  
mount -o rw /dev/sda1 /mnt/flash
```

4.6 Removal of corrupted or empty startup-config files

```
rm -f /mnt/flash/startup-config*  
rm -f /mnt/flash/.startup-config*
```

4.7 Removal of the ZeroTouch configuration file

```
rm -f /mnt/flash/zerotouch-config
```

5. Commands Executed in Aboot (Bootloader Recovery)

5.1 Inspection and navigation

```
ls -lh  
cd /mnt/flash  
ls -lh
```

5.2 Boot attempts from Aboot

```
boot EOS-2GB-4.21.2.3F.swi  
boot /mnt/flash/EOS-2GB-4.21.2.3F.swi  
boot flash:/EOS-2GB-4.21.2.3F.swi
```

5.3 Manual deletion of corrupted files

```
rm -f FSCK0000.REC  
rm -f FSCK0001.REC  
rm -f startup-config*
```

5.4 Attempted recovery

```
recover
```

6. Technical Explanation of the Problem

6.1 Root Causes

- The FAT filesystem had **orphaned clusters**, generating FSCK*.REC files.
- Multiple empty startup-config files were present due to failed write attempts.
- **ZeroTouch remained active**, blocking write operations.
- /mnt/flash could not be unmounted due to running internal processes.
- Several sectors required repair using `fsck`.

6.2 External Symptoms

- `write mem` always failed.
- Boot loop into Aboot when flash validation failed.
- Persistent “no space left on device” errors.
- ZeroTouch kept issuing DHCP requests.

7. Recovery Summary (Academic Format)

1. Cleanup of crash dumps and logs.
2. Removal of corrupted FAT recovery files.
3. Lazy unmount + complete FAT repair using fsck.
4. Safe remount of /mnt/flash.
5. Removal of empty/invalid startup-config files.
6. Removal of ZeroTouch local config.
7. Full ZeroTouch deactivation from EOS.
8. Power-cycle (cold boot) to release locked processes.
9. Final validation: write mem successful.

8. Final Validation

```
write mem
Copy completed successfully.

copy running-config startup-config
Copy completed successfully.

show version
Serial: JPE15062089
(Same unit confirmed)
```

The device is fully stable, writable, and operational.

9. Conclusion

This recovery case involved simultaneous failures:

- FAT filesystem corruption,
- ZeroTouch autostart lockout,
- invalid startup-config replicas,
- orphaned clusters causing FSCK*.REC files,
- bootloader instability.

Through progressive diagnostics and controlled corrective actions, the switch was fully restored, achieving:

- Successful configuration persistency,
- Functional boot sequence,
- Stable /mnt/flash operation,
- Complete ZeroTouch removal.