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Cisco Nexus Hyperfabric — Recover a Cisco 6000 Series Switch Using a USB Drive

Recover a Cisco 6000 series switch using a USB drive

This article provides the procedure to recover Cisco 6000 series switches using a USB drive. If a switch encounters issues, such as becoming unresponsive and remaining stuck at the login screen, recovery is essential to restore its functionality. This process involves reloading the switch with a Cisco Nexus Hyperfabric OS image that includes an updated agent.

Supported hardware and software versions

USB recovery is available only on select BIOS versions. To confirm compatibility, check the BIOS version displayed in the banner after the system reboots.

Table 1: Supported hardware model and minimum BIOS versions

Hardware model	Minimum BIOS version
HF6100-32D	15.4
HF6100-60L4D	5.8

Prerequisites for preparing the USB recovery drive

Ensure you have these items for USB drive preparation.

- Linux virtual machine (VM)
- USB drive with at least 20GB of capacity and support for USB 3.0.
- Download the specific Cisco 6000 series switch recovery image (.tar) from the [Cisco Software Download](#) site and extract these files:
 - **efi_boot.img**
 - **efi_recovery.img**
 - Cisco 6000 series switch model binary file:
 - **SONiC.202405c.2.1.1-0.HF6100-32D.bin**
 - **SONiC.202405c.2.1.1-0.HF6100-60L4D.bin**
 - **readme.txt** (contains the MD5 checksum for verifying file integrity)

Prepare the USB recovery drive

Follow these steps to create a bootable USB drive.

Step 1 Attach the USB drive to the Linux VM and confirm the device is connected.

Example:

```
root@UBUNTU:~$ lsblk
loop0      7:0      0         4K  1 loop
loop1      7:1      0       68.9M  1 loop
...
sda        8:0      0       25G  0 disk
├─sda1     8:1      0        1G  0 part
└─sda2     8:2      0      23.9G  0 part
sdb       8:16     1      28.9G  0 disk
```

In this example, the drive is **sdb**.



Exercise extra caution with the detected USB partition to prevent accidentally formatting non-USB data disks.

Note

Step 2 Partition the USB drive and verify the partitions.

a) Partition the USB drive.

Example:

```
root@UBUNTU:~$ sudo parted /dev/sdb mklabel msdos
root@UBUNTU:~$ sudo parted /dev/sdb mkpart primary fat32 1MiB 301MiB
root@UBUNTU:~$ sudo parted /dev/sdb mkpart primary fat32 301MiB 100%
```

b) Verify the partitions.

Example:

```
root@UBUNTU:~$ lsblk

NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0       7:0      0    4K  1 loop
loop1       7:1      0   68.9M  1 loop
...
sda         8:0      0   25G  0 disk
├─sda1      8:1      0    1G  0 part
└─sda2      8:2      0  23.9G  0 part
sdb        8:16     1  28.9G  0 disk
├─sdb1      8:1      0   300M  0 part
└─sdb2      8:2      0  28.6G  0 part
```

In this example, the **sdb** drive has partitions **sdb1** and **sdb2**.

Step 3 Format partition entries with the FAT filesystem and assign labels.

Partition 1 must have the label "BOOT" and partition 2 must have the label "MAIN".

Example:

```
root@UBUNTU:~$ sudo mkfs.vfat -n "BOOT" /dev/sdb1
root@UBUNTU:~$ sudo mkfs.vfat -n "MAIN" /dev/sdb2
```

Step 4 Download the [EFI boot and recovery artifacts](#) to the same folder on your Linux system. In this example, the Cisco HF6100-32D switch files are downloaded to ~/usb_recovery.

Example:

```
root@UBUNTU:~/usb_recovery$ ls -l

-rwxrwx--- 1 root vboxsf 268435456 Apr 30 18:29 efi_boot.img
```

```
-rwxrwx--- 1 root vboxsf 17179869184 Sep 16 20:34 efi_recovery.img
-rwxrwx--- 1 root vboxsf 1906331887 Sep 16 21:15 SONiC.202405c.2.1.1-0.HF6100-32D.bin
-rwxrwx--- 1 root vboxsf          279 Sep 24 14:29 readme.txt
```

Step 5 Copy the EFI boot and the EFI recovery images to the USB drive.

Example:

```
root@UBUNTU:~$ sudo dd if=usb_recovery/efi_boot.img of=/dev/sdb1 bs=4M
root@UBUNTU:~$ sudo dd if=usb_recovery/efi_recovery.img of=/dev/sdb2 bs=4M
```

Step 6 Create a temporary directory, mount the second partition, and copy the Cisco 6100 series switch image. The image must be named **sonic_recovery.bin** or it will not be automatically detected.

a) Create a temporary directory to mount the second partition.

Example:

```
root@UBUNTU:~$ mkdir recovery_temp
root@UBUNTU:~$ ls recovery_temp
```

b) Mount the second partition to the temporary directory

Example:

```
root@UBUNTU:~$ sudo mount /dev/sdb2 recovery_temp
root@UBUNTU:~$ cd recovery_temp
root@UBUNTU:~/recovery_temp$ ls -l

drwxr-xr-x 4 root root 4096 May 14 04:43 grub
drwx----- 2 root root 16384 May 14 04:43 lost+found
drwxr-xr-x 7 root root 4096 May 14 04:50 onie
drwxr-xr-x 2 root root 4096 Sep 16 18:57 sonic
```

c) Copy the Cisco 6100 series switch image to the **~/recovery_temp/sonic** path as **sonic_recovery.bin**.

The image must be named **sonic_recovery.bin** or it will not be automatically detected.

Example:

```
root@UBUNTU:~/recovery_temp$ cd sonic
root@UBUNTU:~/recovery_temp/sonic$ sudo cp ~/SONiC.202405c.2.1.1-0.HF6100-32D.bin
./sonic_recovery.bin
root@UBUNTU:~/recovery_temp/sonic$ ls

sonic_recovery.bin
```

In this example, the Cisco 6100 series switch image is **SONiC.202405c.2.1.1-0.HF6100-32D.bin**.

Step 7 Exit the mounted temporary directory and sync write operations.

Example:

```
root@UBUNTU:~/recovery_temp/sonic$ cd ../../
root@UBUNTU:~/$ sync
```

Step 8 Unmount the **sdb2** partition and eject the USB drive.

Example:

```
root@UBUNTU:~/$ sudo umount /dev/sdb2
root@UBUNTU:~/$ sudo eject /dev/sdb
```

The USB drive is now ready to be used to recover a Cisco 6000 series switch.

Recover the switch using the prepared USB drive

Follow these steps to recover a Cisco 6000 series switch using the USB drive.

Step 1 Insert the prepared USB drive into the switch.

See the specific Cisco 6000 series switch model documentation to locate the USB port.

- HF6100-60L4D
- HF6100-32D

Step 2 Power cycle the switch to initiate the recovery process.

- a) During the recovery, confirm that the BIOS version matches or exceeds the minimum required version for the switch model listed in [Supported hardware and software versions, on page 1](#).

Figure 1: BIOS banner

```
Cisco HyperFabric 6000 Series BIOS Ver 15.04 Primary
Intel(R) Xeon(R) CPU D-1530 @ 2.40GHz
Board Type 0x107 PID HF6100-32D Serial FLM28220503
X86FPGA 1.89.0 TamLib 5.01.01
```

- b) During the recovery process, the system locates and installs the Cisco 6100 series switch image.

Figure 2: Installing recovery image

```
ONIE: Starting ONIE Service Discovery
Info: Found static url: /mnt/onie-boot/sonic/sonic_recovery.bin
ONIE: Executing installer: /mnt/onie-boot/sonic/sonic_recovery.bin
```

- c) The start screen appears, confirming successful installation and recovery.

Figure 3: Start screen

```
/____| /_ _\ \ \ \ (\_) /____|  
\_ __ \ \ | | | | \ | | | |  
__ ) | | | | | \ | | | |  
| ____ / \___ / | | \ \ | \ ___|
```

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Unauthorized access and/or use are prohibited.
All access and/or use are subject to monitoring.

Help: <https://sonic-net.github.io/SONiC/>

Last login: Mon May 19 19:38:05 UTC 2025 on ttyS0

- d) After the switch has successfully booted from the USB drive, log into the switch with the default credentials:

- **Username:** ttg-admin
- **Password:** hfabric2025

Step 3 Remove the USB drive from the switch after recovery.



Note

If you forget to remove the USB drive, the switch will continue to boot from the USB drive.