

# Troubleshoot IOS XE SD-WAN Upgrade Failure: Insufficient Space

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## Introduction

This document describes the process to diagnose and resolve the issue when a Cisco IOS® XE SD-WAN upgrade fails due to insufficient storage capacity.

## Prerequisites

WAN Edge Router

## Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco Software-Defined Wide Area Network (SD-WAN)
- Cisco IOS® XE Command Line Interface (CLI)

For Cisco IOS XE SD-WAN upgrade information [Upgrade Cisco IOS XE SD-WAN Router with the Use of CLI or vManage](#)

## Components Used

This document is based on these software and hardware versions:

- Router c1111-8P
- Software Version 17.3.2
- Software Version 17.3.4
- Router in controller mode

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

## Conditions

1. Unable to upgrade the router model c1111-8p to 17.3 and other versions before 17.5.
2. Consider these errors:

```
<#root>
```

Not enough space under

```
bootflash
```

for image download and package expansion on image installation. Required space: 1207202432 Available space: 659275776  
Not enough space in

```
SD-WAN installer
```

filesystem. Please remove one of the installed images and try again. SD-WAN installer filesystem size

3. Upgrade fails as shown in these images:

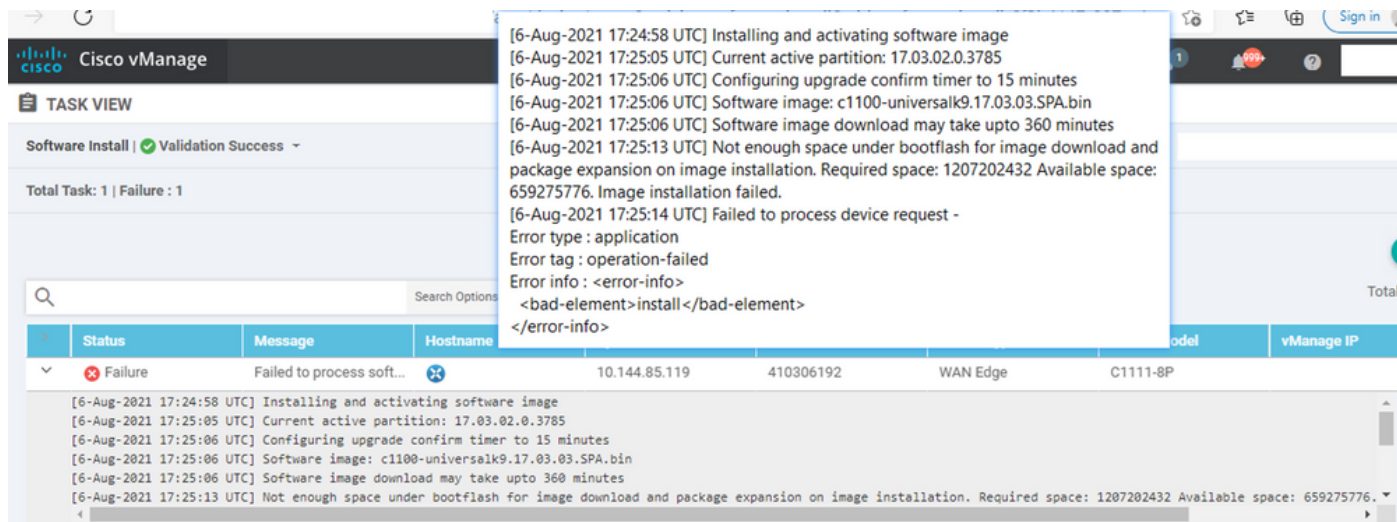


Image1



Image2

4. There is only one version installed. Use the command `show sdwan software` for verification.

### Example

```
edge#show sdwan software
VERSION          ACTIVE  DEFAULT  PREVIOUS  CONFIRMED  TIMESTAMP
-----
17.03.04a.0.5574 true    true     false     user       2021-10-22T23:00:30-00:00

Total Space:387M Used Space:191M Available Space:192M
```

## Troubleshoot

1. Delete unnecessary files with this command:

```
<#root>
```

```
delete /force /recursive bootflash:/
```

```
<directory>
```

```
/
```

```
<file ext>
```

You can delete the next list of files. They are internal logs created for troubleshooting purposes.



**Caution:** Delete them if you are sure there is no other investigation in progress.

---

```
<#root>
```

```
bootflash:/
```

```
vmanage-admin
```

```
/
```

```
*.tar.gz
```

```
bootflash:/
```

```
core
```

```
/
```

```
*.core.gz
```

```
bootflash:/
```

```
core
```

```
/
*.tar.gz
```

```
bootflash:/
syslog
```

```
/
*
```

```
bootflash:/
tracelogs
```

```
/
*
```

```
bootflash:/
crashinfo_*
```

## Example

```
delete /force /recursive bootflash:/tracelog/*
delete /force /recursive bootflash:/ vmanage-admin/*.tar.gz
```



**Warning:** Do not delete these files. They are essential files for router functionality.

---

```
<#root>
```

```
bootflash:/
```

```
.sdwaninstaller
```

```
bootflash:/
```

```
.sdwaninstallerfs
```

```
bootflash:/
```

```
.cdb_backup folder
```

```
bootflash:/
```

```
sdwan folder
```

```
bootflash:/
```

```
*pkg
```

```
bootflash:/
```

```
*.conf.
```

2. Reboot helps to release bootflash memory as shown in the example.

---

 **Caution:** Control plane and Data plane flaps during reboot.

---

```
*** Before Reboot ***
```

```
edge#show sdwan software
```

```
VERSION          ACTIVE  DEFAULT  PREVIOUS  CONFIRMED  TIMESTAMP
```

```
-----  
17.03.04a.0.5574 true    true     false     user       2021-10-22T23:00:30-00:00
```

```
Total Space:387M Used Space:191M Available Space:192M >>> Here
```

```
edge#
```

```
*** Rebooting edge
```

```
edge#reload
```

```
Proceed with reload? [confirm]Connection to 192.168.1.6 closed by remote host.
```

```
*** After Reboot ***
```

```
edge#show sdwan software
```

```
VERSION          ACTIVE  DEFAULT  PREVIOUS  CONFIRMED  TIMESTAMP
```

```
-----  
17.03.04a.0.5574 true    true     false     user       2021-10-22T23:00:30-00:00
```

```
Total Space:387M Used Space:190M Available Space:193M >>>> Here
```

## Work Around

Apply the next steps if previous actions did not work to upgrade the router c1111-8p.

### Issue 1

If the upgrade issue is related to this error *Not enough space under **bootflash***, reference to the next instructions.

**Step 1.** Enable IOx.

```
Config-transaction
```

```
iox
```

```
commit
```

```
end
```

**Step 2.** Run the next command to move the IOx log from bootflash to flash.

app-hosting move system techsupport to flash:

### Step 3. Disable IOx.

```
Config-transaction
no iox
commit
end
```

### Example

<#root>

**Before IOx enabling**

```
edge#dir
Directory of bootflash:/
<snipped>
2908606464 bytes total (
646643712 bytes free
)
edge#
```

**After IOx disabling**

```
edge#dir
Directory of bootflash:/
<snipped>
2908606464 bytes total (
1671614464 bytes free
)
edge#
```

### Step 4. Proceed to upgrade.

```
request platform software sdwan software install bootflash:<version.bin>
request platform software sdwan software activate <IOS version>
request platform software sdwan software upgrade-confirm
request platform software sdwan software set-default <IOS version>
```

## Issue 2

If the upgrade issue is related to this error 'Not enough space in **SD-WAN installer** filesystem', then reference these instructions.

**Step 1.** Log in to the shell.

For more information, reference to .

**Step 2.** Go to the **.sdwaninstaller/images** directory. Use Linux commands to find and remove old files.

```
<#root>
cd /bootflash/
.sdwaninstaller
/
images

ls -l
rm -rf <old file>
```

**Step 3.** Exit from the shell with Linux command.

```
exit
```

**step 4.** Proceed to upgrade.

```
request platform software sdwan software install bootflash:<version.bin>
request platform software sdwan software activate <IOS version>
request platform software sdwan software upgrade-confirm
request platform software sdwan software set-default <IOS version>
```

---

 **Tip:** For Upgrade via vManage [Upgrade SD-WAN cEdge Router with the Use of CLI or vManage](#)

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## Example

\*\*\*\* Before to Clean Up \*\*\*\*

```
[23-Sep-2022 18:08:05 UTC] Installing software image
[23-Sep-2022 18:08:09 UTC] Current active partition: 17.03.04a.0.5574
[23-Sep-2022 18:08:10 UTC] Configuring upgrade confirm timer to 15 minutes
[23-Sep-2022 18:08:11 UTC] Software image: c1100-universalk9.17.03.05.SPA.bin
[23-Sep-2022 18:08:11 UTC] Software image download may take upto 180 minutes
```

```
[23-Sep-2022 18:08:17 UTC] Not enough space in SDWAN installer filesystem. Please remove one of the ins
[23-Sep-2022 18:08:17 UTC] Failed to process device request -
Error type : application
Error tag : operation-failed
Error info : <error-info>
  <bad-element>install</bad-element>
</error-info>
```

```
edge#show sdwan software
VERSION          ACTIVE  DEFAULT  PREVIOUS  CONFIRMED  TIMESTAMP
-----
17.03.04a.0.5574 true    true     false     user       2021-10-22T23:00:30-00:00
```

```
Total Space:387M Used Space:190M Available Space:193M >>> Here
edge#
```

```
**** Clean old files from sdwaninstaller ****
[edge:/]$ cd /bootflash/.sdwaninstaller/images
[edge:/bootflash/.sdwaninstaller/images]$ ls -l
total 2
drwxr-xr-x. 3 root root 1024 Oct  3  2019 SR_BOOT=usb0:c1100-ucmk9.16.9.3.SPA.bin
drwxr-xr-x. 3 root root 1024 Sep 23 13:33 c1100-universalk9.17.03.04a.SPA.bin
[edge:/bootflash/.sdwaninstaller/images]$ rm -rf SR_BOOT=usb0:c1100-ucmk9.16.9.3.SPA.bin
[edge:/bootflash/.sdwaninstaller/images]$ ls -l
total 1
drwxr-xr-x. 3 root root 1024 Sep 23 13:33 c1100-universalk9.17.03.04a.SPA.bin
[edge:/bootflash/.sdwaninstaller/images]$ exit
exit
Session log harddisk:tracelogs/system_shell_R0-0.18547_0.20220923134926.bin closed.
```

```
edge#
edge#show sdwan software
VERSION          ACTIVE  DEFAULT  PREVIOUS  CONFIRMED  TIMESTAMP
-----
17.03.04a.0.5574 true    true     false     user       2021-10-22T23:00:30-00:00
```

```
Total Space:387M Used Space:120M Available Space:262M >>>> Space increased
```

```
**** Upgrade Successful:
[23-Sep-2022 18:53:38 UTC] Installing software image
[23-Sep-2022 18:53:43 UTC] Current active partition: 17.03.04a.0.5574
[23-Sep-2022 18:53:44 UTC] Configuring upgrade confirm timer to 15 minutes
[23-Sep-2022 18:53:44 UTC] Software image: c1100-universalk9.17.03.05.SPA.bin
[23-Sep-2022 18:53:44 UTC] Software image download may take upto 180 minutes
[23-Sep-2022 18:53:54 UTC] Connection Instance: 2, Color: private1
[23-Sep-2022 18:53:54 UTC] Downloading http://192.168.16.17:8080/software/package/c1100-universalk9.17.0
[23-Sep-2022 19:06:04 UTC] Downloaded http://192.168.16.17:8080/software/package/c1100-universalk9.17.0
[23-Sep-2022 19:09:31 UTC] install_add: START Fri Sep 23 14:06:10 COT 2022
Sep 23 14:06:12.207 %INSTALL-5-INSTALL_START_INFO: R0/0: install_engine: Started install add bootflash:
[23-Sep-2022 19:09:31 UTC] Installed 17.03.05.0.6600
```

## Caveat

Possible Problems during the upgrade via vManage GUI:

- **Not enough space**



**Fix:** verify the bootflash and delete all the images you are not using. You can delete all the packages via the CLI file with the command `# delete bootflash:*17.03.01*`.

This command deletes all the files that have the name 17.03.01.

```
Edge#delete bootflash:*17.03.01*
Delete filename [*17.03.01*]?
Delete bootflash:/isr4300-firmware_dreamliner.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_dsp_analogbri.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_dsp_sp2700.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_dsp_tilegx.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_ngwic_t1e1.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_nim_async.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_nim_bri_st_fw.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_nim_cwan.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_nim_ge.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_nim_shdsl.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_nim_ssd.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_nim_xdsl.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_prince.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-rpboot.17.03.01a.SPA.pkg? [confirm]
Delete bootflash:/isr4300-firmware_sm_10g.17.03.01a.SPA.pkg? [confirm]
```

You can also boot from a USB drive, delete all images from bootflash, copy the bin file into the bootflash, and reboot.



**Note:** If the router is in controller mode all the commands from IOS-XE related to packages do not work.

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**Note:** Change the boot variable via CLI is also disabled in controller mode. You can move the device to autonomous mode, upgrade, and then move it back to controller mode.

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- **The image is already present in the router**

You can verify if the version is already present via the vManage GUI or CLI with the command `show sdwan software`.

**Fix:** Remove the unused images via the vManage GUI or with the command `request platform software sdwan software remove <Name>`.

- **We have more than three images in the router**

You can verify if the version is already present via the vManage GUI or CLI with the command `show sdwan software`.

**Fix:** Remove the unused images via the vManage GUI or with the command `request platform software sdwan software remove <Name>`.

## Related Information

- [Upgrade SD-WAN cEdge Router with the Use of CLI or vManage](#)
- [Cisco Technical Support & Downloads](#)