

# Configure and Troubleshoot External Configuration Archive on DNA Center

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## Introduction

This document describes how to use the External Configuration Archive feature, available from Cisco DNA Center 2.3.5.x release.

## Prerequisites

### Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco DNA Center running a 2.3.5 release
- Linux Secure File Transfer Protocol (SFTP) server

### Components Used

The information in this document is based on these software and hardware versions:

- Cisco DNA Center running a 2.3.5 release or higher
- An SFTP server, on this document a Linux RedHat 8 server is used

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.

## Configure

### Configure the SFTP Settings

Step 1. Unlike File Transfer Protocol (FTP), there is no need to install additional packages in order to use SFTP. SFTP uses the SSH subsystem. Therefore, just run the command `rpm -qa|grep ssh` and confirm if you

already have the required SSH package.

The output must be similar to this:

```
[admin@backup-server ~]$ rpm -qa|grep ssh
libssh-0.9.4-3.el8.x86_64
openssh-clients-8.0p1-10.el8.x86_64
openssh-8.0p1-10.el8.x86_64
libssh-config-0.9.4-3.el8.noarch
openssh-server-8.0p1-10.el8.x86_64
openssh-askpass-8.0p1-10.el8.x86_64
qemu-kvm-block-ssh-4.2.0-59.module+el8.5.0+12817+cb650d43.x86_64
```

Step 2. Create a new folder and assign proper permissions to it.

```
[admin@backup-server data]$ mkdir -p /data/sftp
[admin@backup-server data]$ chmod 700 /data
```

Step 3. Move to the new directory.

```
[admin@backup-server data]$ cd /data/sftp
```

Step 4. Create a `group` and a `user` in order to regulate users with SFTP access.

```
[admin@backup-server sftp]$ groupadd sftpusers
```

Step 5. Create a user, for example, `digranad` and bind it to both the **sftpusers** group and to the folder created in Step 1.

```
[admin@backup-server sftp]$ useradd -g sftpusers -d /data/sftp digranad
```

Assign a password to the user.

```
[admin@backup-server sftp]$ passwd digranad
Changing password for user digranad.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
```

Step 6. Configure the correct permissions to the directory using the **group** and **user** created in the earlier steps. Use the command `sudo chown user:group directory/`.

```
<#root>
```

```
[admin@backup-server data]$ pwd  
/data
```

```
[admin@backup-server data]$
```

```
sudo ls -lrt
```

```
[sudo] password for admin:  
total 0  
drwxr-xr-x. 2
```

```
root
```

```
root
```

```
6 Feb 3 18:22 sftp
```

```
[admin@backup-server data]$
```

```
sudo chown digranad:sftpusers sftp/
```

```
[admin@backup-server data]$
```

```
sudo ls -lrt
```

```
total 0  
drwxr-xr-x. 3 digranad sftpusers 38 May 18 15:04 sftp  
[admin@backup-server data]$
```

At this point, you have successfully configured the SFTP settings. Now proceed with the configuration on Cisco DNA Center.

## Configure the SFTP External Repository on Cisco DNA Center GUI

Step 1. Log into the Cisco DNA Center GUI, and navigate to `System > Settings > Configuration Archive`.

Step 2. In the Configuration Archive window, click the **External** tab.

Step 3. Click the **Add** icon in order to start the configuration of an External Repository.

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**Note:** Only one SFTP server can be added.

---

Step 4. In the Add New External Repository slide-in pane and complete these details:

a. Host: Enter the server IP address.

b. Root Location: Enter the location of the root folder.

c. Server Protocol: Enter the username, password, and port number of the SFTP server (port 22 is the default SFTP port).

d. Choose the Backup Format:

- RAW: A full running configuration is going to be disclosed. All sensitive/private configurations are unmasked in the backup data. Enter a password to lock the backup file.
- 

**Caution:** File passwords are not saved on Cisco DNA Center. You must remember the password in order to access the files on the SFTP server.

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**Note:** The password is applicable only when the raw backup format is selected.

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- Sanitized (Masked): The sensitive/private configuration details in the running configuration are going to be masked.

e. Schedule the backup cycle. Enter the backup date, time, timezone, and recurrence interval.

---

**Note:** Use the settings configured on the **Configure SFTP** settings section of this document.

---

# Add New External Repository

## Server Details

Host\*

10.88.244.174

Root Location\*

/data/sftp

Server Protocol

SFTP

Username\*

digranad

Password\*

\*\*\*\*\*

SHOW

Port Number\*

22

*External Repository Configuration 1*

## Backup Format

Backup Format ⓘ

RAW  Sanitized (Masked)

## Backup Cycle ⓘ


Scheduler

Later

Task Name\*

CA External Repository

Start Date/Time

May 18, 2023 

12:25 PM 

```
[admin@backup-server 1eeb097b-1d13-4e90-ba38-aace54dcdab5]$ ls -lrt
total 364
-rw-r--r--. 1 digranad sftpusers 371393 May 18 15:31 Export_Configs-17_May_2023_23_50_00_212-w8Q.zip
```

You have these two options in order to check the files inside the **.zip** file:

### Option 1. UnZip the Export\_Configs File

Run the **unzip** command for the **.zip** file.

---

**Note:** Sudo option is needed in the example since you are logged in with the admin username.

---

```
[admin@backup-server 1eeb097b-1d13-4e90-ba38-aace54dcdab5]$ sudo unzip Export_Configs-17_May_2023_23_50_00_212-w8Q.zip
Archive: Export_Configs-17_May_2023_23_50_00_212-w8Q.zip
```

This option creates a directory for every device in the inventory. Check those with the **ls** command.

<#root>

```
[admin@backup-server 1eeb097b-1d13-4e90-ba38-aace54dcdab5]$
ls

-lrt

total 364
-rw-r--r--. 1 digranad sftpusers 371393 May 18 15:31 Export_Configs-17_May_2023_23_50_00_212-w8Q.zip
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Border2.Pod2.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-FIAB.Pod8.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Border2.Pod8.example.com
drwxr-xr-x. 2 root root 106 Jul 19 15:45 x.x.x.x-MXC.L.11-9300
drwxr-xr-x. 2 root root 106 Jul 19 15:45 x.x.x.x-MXC.N.04-9300
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Edge1.Pod8.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-WLC.Pod8.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Edge2.Pod2.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Border1_node.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Border2_node.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Edge-1
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Interm.Pod8.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Edge2.Pod8.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-MXC.I.12-9500
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Edge1.Pod2.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Border1.Pod8.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Switch.Pod2.example.com
drwxr-xr-x. 2 root root 106 Jul 19 15:45 x.x.x.x-MXC.D.10-9300
drwxr-xr-x. 2 root root 106 Jul 19 15:45 x.x.x.x-Fusion_Router.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Border1.Pod2.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-LanAauto-5.Pod8.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Router-Lab.cisco
```

```
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Edge-1
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-WLC1.Pod2.example.com
drwxr-xr-x. 2 root root 106 Jul 19 15:45 x.x.x.x-Router
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Edge-2
drwxr-xr-x. 2 root root 106 Jul 19 15:45 x.x.x.x-sw2.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-Fusion.Pod8.example.com
drwxr-xr-x. 2 root root 151 Jul 19 15:45 x.x.x.x-9800-5-jdv.example.com
```

Each directory is created with the format `x.x.x.x-DeviceHostname` where `x.x.x.x` stands for the device management IP Address.

The data saved can vary depending on the device type. Here are two examples, one for `x.x.x.x-Edge1.Pod8.example.com` and the other for `x.x.x.x-Fusion_Router.cisco.com`.

In order to see the stored files, `cd` to the device directory and list its contents.

```
[admin@backup-server 1eeb097b-1d13-4e90-ba38-aace54dcdab5]$ cd x.x.x.x-Edge1.Pod8.example.com
```

```
[admin@backup-server x.x.x.x-Edge1.Pod8.example.com]$ ls -lrt
total 140
-rw-r--r--. 1 root root 556 May 17 23:50 17_May_2023_23_50_00_212_vlan.dat.bat
-rw-r--r--. 1 root root 67990 May 17 23:50 17_May_2023_23_50_00_212_STARTUPCONFIG.cfg
-rw-r--r--. 1 root root 68055 May 17 23:50 17_May_2023_23_50_00_212_RUNNINGCONFIG.cfg
```

```
[admin@backup-server 1eeb097b-1d13-4e90-ba38-aace54dcdab5]$ cd x.x.x.x-Fusion_Router.example.com
[admin@backup-server x.x.x.x-Fusion_Router.example.com]$ ls -lrt
total 32
-rw-r--r--. 1 root root 15578 May 17 23:50 17_May_2023_23_50_00_212_STARTUPCONFIG.cfg
-rw-r--r--. 1 root root 15578 May 17 23:50 17_May_2023_23_50_00_212_RUNNINGCONFIG.cfg
```

---

**Note:** It is expected that Router-based devices do not store VLAN data.

---

Finally, use the Linux `cat` tool in order to check the contents of each configuration file.

```
admin@backup-server x.x.x.x-Fusion_Router.cisco.com]$ cat 17_May_2023_23_50_00_212_STARTUPCONFIG.cfg
service timestamps debug datetime msec
service timestamps log datetime msec
service password-encryption
service call-home
...
...
...
snmp-server host x.x.x.x version 2c *****
snmp-server host x.x.x.x version 2c *****
control-plane
line con 0
stopbits 1
line aux 0
line vty 0 4
```

```
transport input ssh
destination transport-method http
event manager applet catchall
event cli pattern ".*" sync no skip no
action 1 syslog msg "$_cli_msg"
netconf-yang
end
```

## Option 2. Navigate on the .zip using Linux Vim Tool

Vim tool allows you to navigate through the **.zip** file without extracting it. For this, run the **vim** command with the **.zip** file.

```
[admin@backup-server 1eeb097b-1d13-4e90-ba38-aace54dcdab5]$ vim Export_Configs-17_May_2023_23_50_00_212
```

Vim loads a browsing environment where you can navigate over all the files inside the **.zip** file using your arrow keys and **Enter** key in order to navigate the files.

```
" zip.vim version v28
" Browsing zipfile /data/sftp/device_config_export/1eeb097b-1d13-4e90-ba38-aace54dcdab5/Export_Configs-1
" Select a file with cursor and press ENTER

/x.x.x.x-Border2.Pod2.example.com/17_May_2023_23_50_00_212_RUNNINGCONFIG.cfg
/x.x.x.x-Border2.Pod2.example.com/17_May_2023_23_50_00_212_STARTUPCONFIG.cfg
/x.x.x.x-Border2.Pod2.example.com/17_May_2023_23_50_00_212_vlan.dat.bat
/x.x.x.x-FIAB.Pod8.example.com/17_May_2023_23_50_00_212_STARTUPCONFIG.cfg
/x.x.x.x-FIAB.Pod8.example.com/17_May_2023_23_50_00_212_vlan.dat.bat
/x.x.x.x-FIAB.Pod8.example.com/17_May_2023_23_50_00_212_RUNNINGCONFIG.cfg
/x.x.x.x-Border2.Pod8.example.com/17_May_2023_23_50_00_212_vlan.dat.bat
```

---

**Note:** In order to exit from any file or from the Vim environment, use the command **:q!**.

---

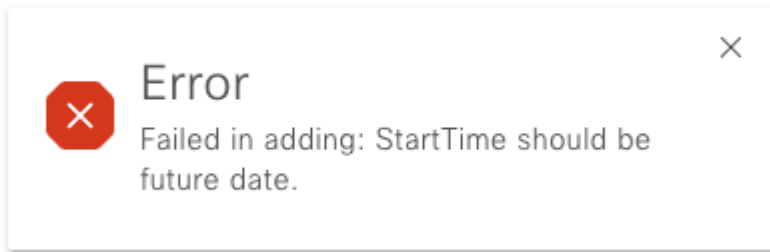
# Troubleshoot

## Common Errors

### 1. Start Time is Bigger than the Current Time

After the external repository server is configured, if the configured **StartTime** for the backup cycle is older than the current time, this error appears:





In order to change this, simply choose a different **StartTime** which is greater than the current time.

## 2. Root Location Directory is not Empty

In case the root location folder was not created from scratch or you are reconfiguring the external repository on Cisco DNA Center, this error appears:

Internal External

NCFS10080: The root location /data/sftp on external server 10.88.244.174 is not empty. Please delete the files before adding

In order to fix this error, clean up the Root Location in the SFTP server. Log in to the SFTP server and navigate to the location with the `cd` command and perform a cleanup with the command `sudo rm -r`.

```
[admin@backup-server sftp]$ cd /data/sftp
[admin@backup-server sftp]$ sudo rm -r
```

Use the `ls -lrt` command in order to confirm that there are no files and use the `ls -la` command in order to verify if there are any hidden files left.

<#root>

```
[admin@backup-server sftp]$ sudo ls -lrt
```

```
total 0
```

```
[admin@backup-server sftp]$ sudo ls -la
```

```
total 4
```

```
drwxr-xr-x. 3 digranad sftpusers 38 May 18 15:23 .
drwx-----x. 4 root      root      34 Feb  3 18:27 ..
drwx----- . 3 digranad sftpusers 19 May 18 15:03 .config
-rw----- . 1 digranad sftpusers 16 May 18 15:03 .esd_auth
```

In case there are hidden files, remove them with the command `sudo rm -r .*` and use the `ls -la` command again in order to confirm that all files are removed.

<#root>

```
[admin@backup-server sftp]$ sudo rm -r .*  
rm: refusing to remove '.' or '..' directory: skipping '.'  
rm: refusing to remove '.' or '..' directory: skipping '..'  
[admin@backup-server sftp]$
```

```
[admin@backup-server sftp]$ sudo ls -la
```

```
total 0
```

```
drwxr-xr-x. 2 digranad sftpusers  6 May 18 15:25 .  
drwx----x. 4 root      root      34 Feb  3 18:27 ..  
[admin@backup-server sftp]$
```

### 3. Root Location Folder does not Exist or Permissions were not Granted Correctly

In case the root location folder is missing in SFTP Server, or in case it exists without the proper permissions, this error is displayed:

Internal External

 NCFS10011: The remote root location /data/sftp does not exist or does not have write permissions. [Click here to edit](#)

Track the permissions starting from the top to the bottom. In this example, check the permissions or the existence of the /sftp directory under the /data directory.

Use the command `pwd` in order to know the location of the current folder.

<#root>

```
[admin@backup-server data]$ pwd
```

```
/data
```

With the `ls -lrt` command confirm that the /sftp folder exists and verify its permissions.

<#root>

```
[admin@backup-server data]$ ls -lrt
```

```
total 0
```

```
drwxr-xr-x. 2
```

```
root root
```

```
6 Feb  3 18:22 sftp
```

The directory /sftp has permissions set to root. In case a different user was used in Step 4. of the Configure SFTP server on Cisco DNA Center GUI section, then you must change the username in the GUI Settings or the permissions in the SFTP Server. You can use Step 6. of the Configure SFTP Settings section for reference.