

# Configure Third Party Repository on Cisco Open NX-OS

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## Introduction

This document describes how to setup Extra Packages for Enterprise Linux (EPEL) as third party repository on the Cisco Open NX-OS.

## Prerequisites

### Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco Open NX-OS
- Domain Name System (DNS)

### Components Used

The information in this document is based on Cisco Nexus N9K-C9364C with NXOS version 10.3(4a).

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

Cisco NX-OS is the network operating system (OS) that powers Cisco Nexus switches across thousands of production environments. It was the first data center network operating system to be built with Linux. Cisco NX-OS has always been powered by Linux, under the hood, and has recently exposed many of the Linux capabilities to end-users.

Users can leverage their standard Linux server management tools and workflows to install their custom-developed Linux-based applications, or other standard open source programs, and have them function "out of the box" on the Nexus switch. It is straightforward to integrate common third-party configuration management agents like Puppet, Chef, and telemetry applications such as ganglia, splunk, collector, nagios on the switch.

## Methods

There are two ways to connect Nexus switches to third party repositories.

- Directly: You can reach repository using any layer 3 interface.
- Via Proxy: You can reach repository through proxy using any layer 3 interface.

## Configurations

These configurations are implemented on Nexus 9K switch using management VRF for all communications.

### Method 1: Directly Connected

Step 1. Enable required features.

```
Nexus(config)# feature bash
```

Step 2. Configure DNS client.

```
Nexus(config)# ip domain-lookup  
Nexus(config)# vrf context management  
Nexus(config-vrf)# ip name-server <dns server ip>
```

Step 3. Configure third party repository file. Here you point to your desired repository.

---

**Note:**

This guide uses Extra Packages for Enterprise Linux (EPEL) as example

Vim is pre-installed to edit files.

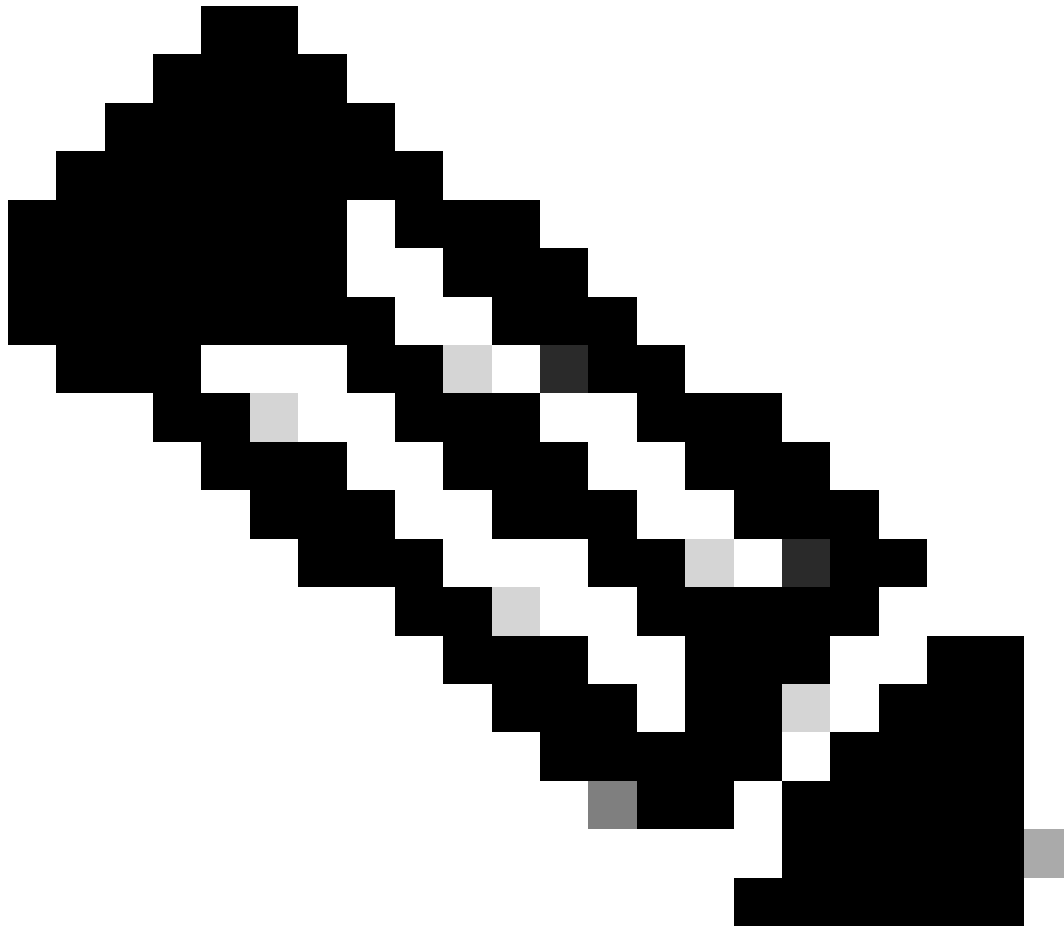
Cat command is used to show the content file.

---

```
Nexus# run bash
bash-4.3$ sudo su -l
root@cisco#cat /etc/yum/repos.d/thirdparty.repo
[thirdparty]
name=Thirdparty RPM Database
baseurl=https://dl.fedoraproject.org/pub/epel/7/x86_64/
enabled=1
gpgcheck=1
metadata_expire=0
cost=500
sslverify=0
```

Step 4. Download proper GNU Privacy Guard (GPG) key on the expected directory.

---



**Note:** Management VRF is specified

---

```
root@cisco#cd /etc/pki/rpm-gpg
root@cisco#ip netns exec management wget https://dl.fedoraproject.org/pub/epel/RPM-GPG-KEY-EPEL-7
```

Step 5. Import the GPG key.

```
root@cisco#rpm --import RPM-GPG-KEY-EPEL-7
```

## **Method 2: Connected via Proxy**

Step 1. Enable required features.

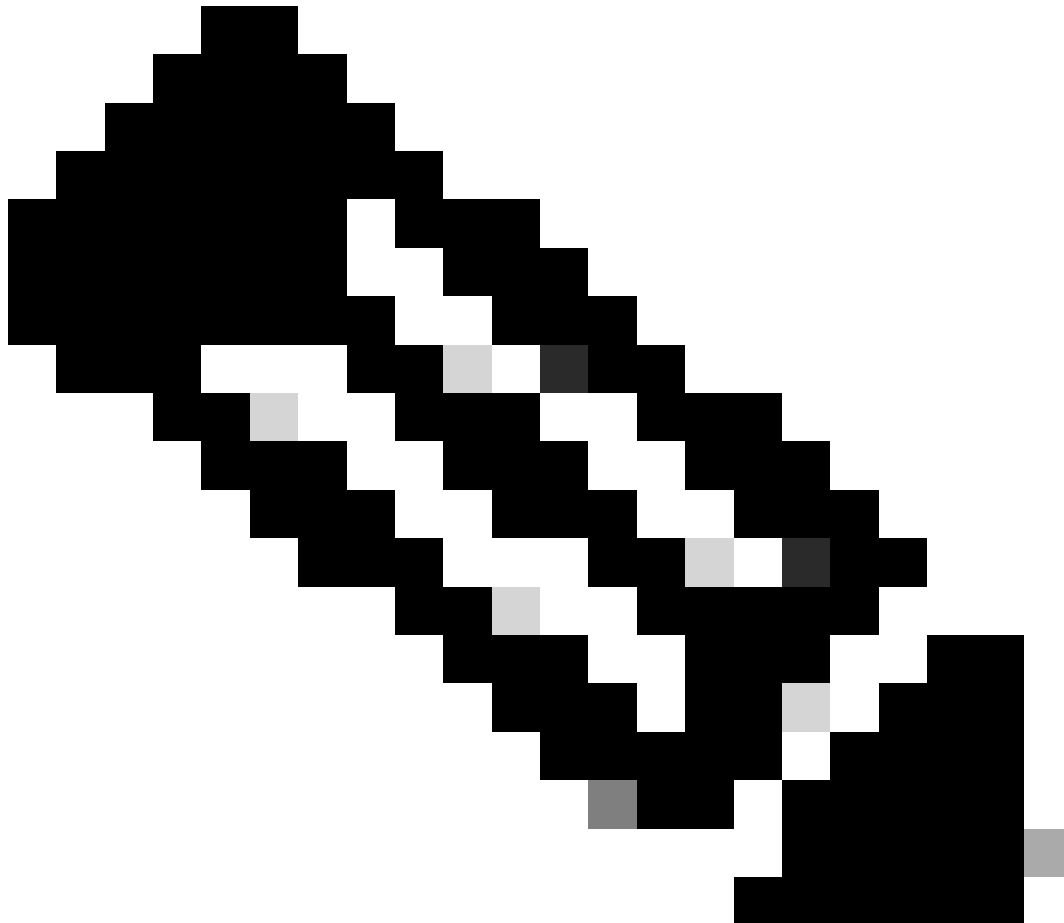
```
Nexus(config)# feature bash
```

Step 2. Configure DNS client.

```
Nexus(config)# ip domain-lookup  
Nexus(config)# vrf context management  
Nexus(config-vrf)# ip name-server <dns server ip>
```

Step 3. Configure options file for yum. Here you point to the proxy.

---



**Note:**

The `proxy_username` and `proxy_password` options are not required for anonymous proxy.

Timeout value is 60 by default, set the option if you want a different value.

---

---

Vim is pre-installed to edit files.

Cat command is used to show the content file.

---

```
Nexus# run bash
bash-4.3$ sudo su -l
root@cisco#cat /etc/yum/yum.conf
[main]
cachedir=/var/cache/yum
keepcache=1
debuglevel=2
logfile=/var/log/yum.log
exactarch=1
obsoletes=1
pluginpath=/lib/yum-plugins
plugins=1
proxy=http://<proxy ip>:<proxy port>/
proxy_username=cisco
proxy_password=cisco123
timeout=300

# PUT YOUR REPOS HERE OR IN separate files named file.repo
# in /etc/yum/repos.d
```

Step 4. Configure third party repository file. Here you point to your desired repository.



**Note:**

This guide uses Extra Packages for Enterprise Linux (EPEL) as example.

Vim is pre-installed to edit files.

Cat command is used to show the content file.

---

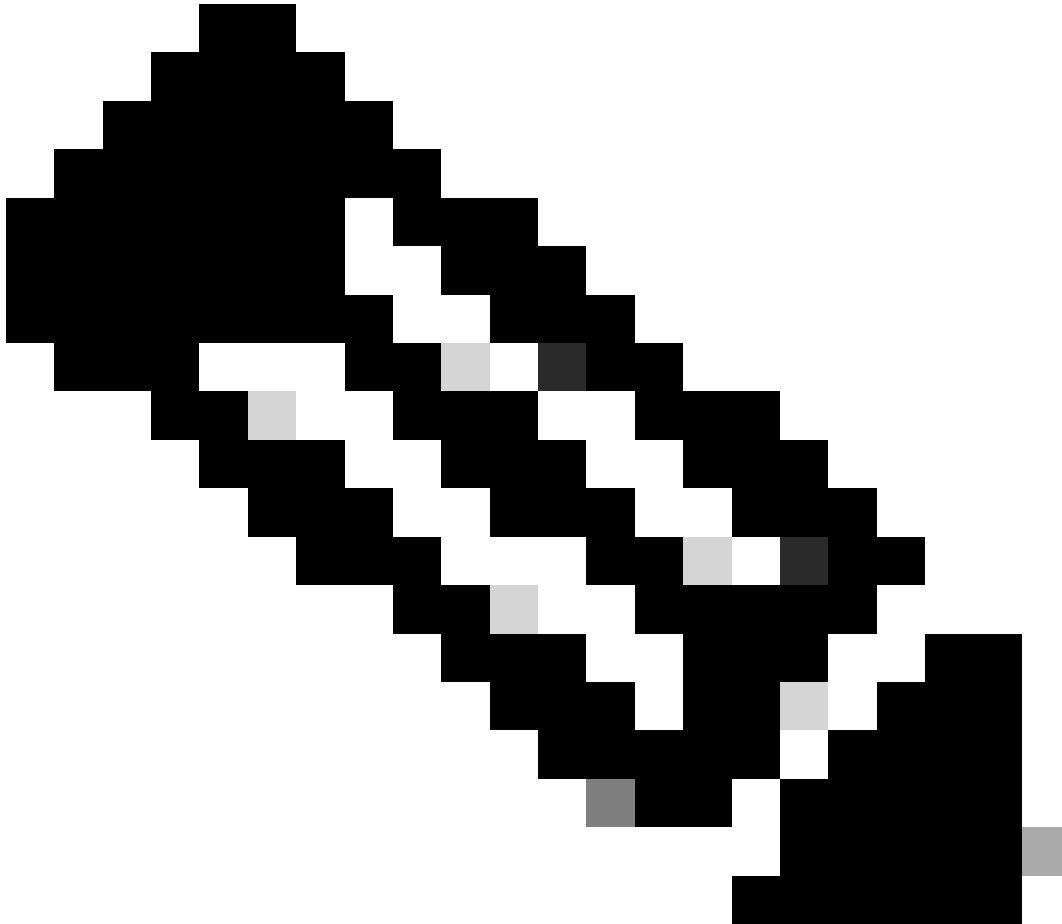
```
root@cisco#cat /etc/yum/repos.d/thirdparty.repo
[thirdparty]
name=Thirdparty RPM Database
baseurl=https://dl.fedoraproject.org/pub/epel/7/x86_64/
enabled=1
gpgcheck=1
metadata_expire=0
cost=500
sslverify=0
```

Step 5. Setup proxy for https connections.

```
root@cisco#export https_proxy=http://<proxy ip>:<proxy port>
```

Step 6. Download proper GNU Privacy Guard (GPG) key on the expected directory.

---



**Note:** Management VRF is specified

---

```
root@cisco#cd /etc/pki/rpm-gpg  
root@cisco#ip netns exec management wget https://dl.fedoraproject.org/pub/epel/RPM-GPG-KEY-EPEL-7
```

Step 7. Import the GPG key.

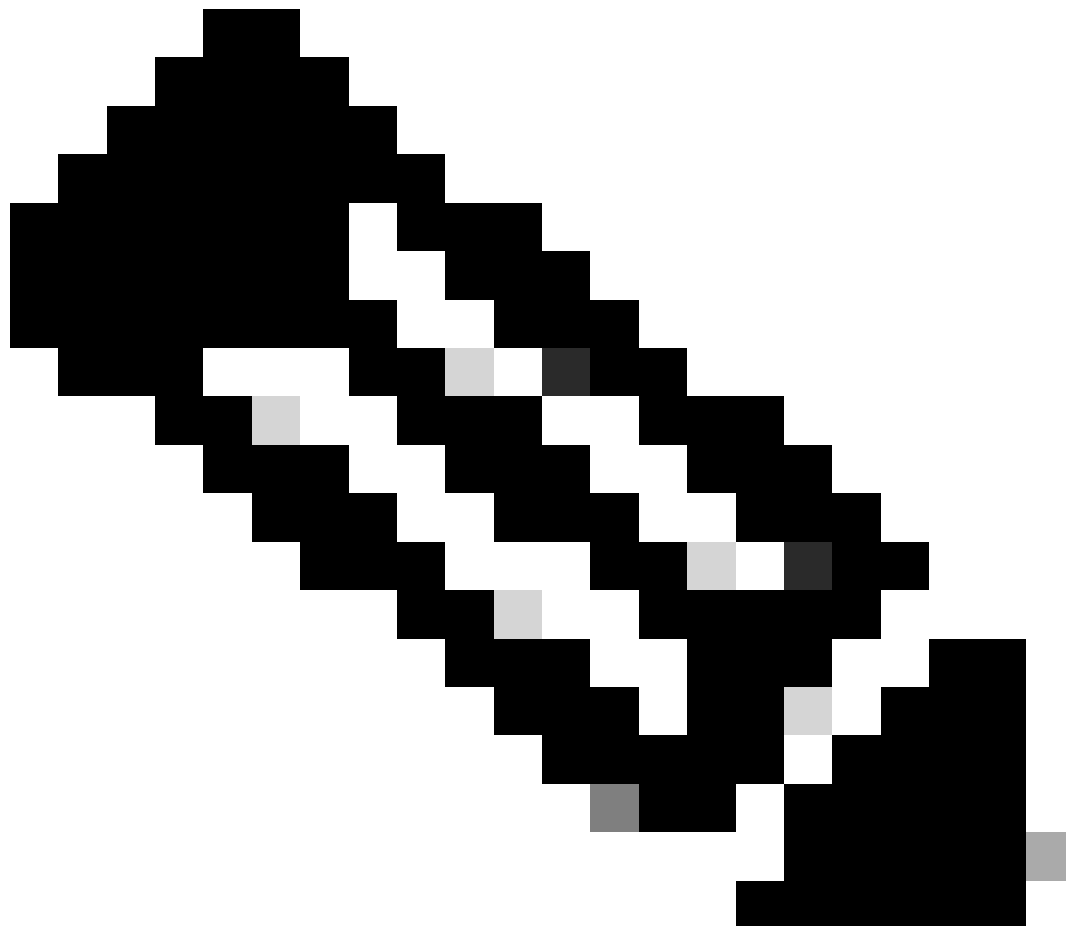
```
root@cisco#rpm --import RPM-GPG-KEY-EPEL-7
```



# Verify

This guide installs SHC package to verify third party repository has been configured properly.

---



**Note:** Management VRF is specified on every command

---

Step 1. Confirm Nexus is able to fetch packages.

```
root@cisco#ip netns exec management yum repolist
Loaded plugins: downloadonly, importpubkey, localrpmDB, patchaction, patching,
               : protect-packages
groups-repo          | 1.1 kB    00:00 ...
localdb              | 951 B    00:00 ...
patching             | 951 B    00:00 ...
thirdparty           | 4.7 kB    00:00
wrl-repo             | 951 B    00:00 ...
repo id              repo name          status
groups-repo         Groups-RPM Database 46
localdb              Local RPM Database 0
```

```

patching                Patch-RPM Database                0
thirdparty              Thirdparty RPM Database    13,798
wrl-repo                Groups-RPM Database        12
repolist: 13,856

```

## Step 2. Install SHC package

```

root@cisco#ip netns exec management yum install shc
Loaded plugins: downloadonly, importpubkey, localrpmDB, patchaction, patching,
               : protect-packages
groups-repo            | 1.1 kB    00:00 ...
groups-repo/primary   | 35 kB     00:00 ...
groups-repo           46/46
localdb                | 951 B     00:00 ...
localdb/primary       | 197 B     00:00 ...
patching               | 951 B     00:00 ...
patching/primary      | 197 B     00:00 ...
thirdparty             | 4.7 kB    00:00
thirdparty/primary_db | 7.0 MB    00:25
wrl-repo               | 951 B     00:00 ...
wrl-repo/primary      | 4.2 kB    00:00 ...
wrl-repo              12/12
Setting up Install Process
Resolving Dependencies
--> Running transaction check
---> Package shc.x86_64 0:4.0.3-1.e17 will be installed
--> Finished Dependency Resolution

```

Dependencies Resolved

```

=====
Package      Arch      Version      Repository      Size
=====
Installing:
shc          x86_64    4.0.3-1.e17  thirdparty      38 k

```

Transaction Summary

```

=====
Install      1 Package

```

Total download size: 38 k

Installed size: 90 k

Is this ok [y/N]: y

Downloading Packages:

```

shc-4.0.3-1.e17.x86_64.rpm | 38 kB    00:00

```

Running Transaction Check

Running Transaction Test

Transaction Test Succeeded

Running Transaction

\*\* Found 1 pre-existing rpmdb problem(s), 'yum check' output follows:

busybox-1.23.2-r0.0.x86\_64 has missing requires of busybox-syslog

```

Installing : shc-4.0.3-1.e17.x86_64 1/1

```

Installed:

```

shc.x86_64 0:4.0.3-1.e17

```

Complete!

Install operation 21 completed successfully at Tue Apr 9 23:36:10 2024.

```
[#####] 100%
```

Step 3. Confirm SHC is installed.

```
root@cisco#shc
```

```
shc parse(-f): No source file specified
```

```
shc Usage: shc [-e date] [-m addr] [-i iopt] [-x cmd] [-l lopt] [-o outfile] [-rvDSUHCABh] -f script
```

## Related Links

[Open NX-OS](#)

[Programmability and Automation with Cisco Open NX-OS](#)

[Repository for Cisco Nexus Switch Programmability Scripts](#)