

Cisco NCS5500

IOS-XR Release 7.3.2

IOS-XR System Upgrade Procedure

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1 Introduction

1.1 Purpose, Scope and Audience

The purpose of this document is to describe the upgrade and downgrade procedure for the Cisco NCS 5500 Series Network Convergence System Router, Release 7.3.2

Audience: This guide is for Cisco Systems Field Engineers and Network Operators. It is split into four sections.

- 1) Simple one command install upgrade process & detailed IOS XR install upgrade process
- 2) Other Boot Options
- 3) FPD upgrade
- 4) Caveats and CLI changes

1.2 Upgrade/downgrade Matrix

Single Step Upgrade/Downgrade is supported for following releases:

| Platform | Supported From | To |
|---------------------------------|---|-------|
| NCS5500 Fixed + Modular Chassis | 7.x.x (7.0.1,7.0.2, 7.1.1, 7.1.2, 7.2.1, 7.2.2,7.3.1) | 7.3.2 |

For older releases, it is recommended to first upgrade to one of the supported releases and then move to the target release. Following link can be used to download the upgrade document for 7.0.2 release (File name:NCS5500-docs-7.0.2.tar):

<https://software.cisco.com/download/home/286291132/type/280805694/release/7.0.2>

1.3 Summary of Upgrade Steps

1. Any of the below methods can be used for upgrade.

Method A:

- Add the image to the router using `install add source <source remote location or local directory> <packages>`
- Install prepare and install activate the software

Method B:

- Use single command upgrade: `install source <source remote location or local directory> <packages>`

Method C:

- Use single command upgrade: `install replace <source remote location or local directory>/<giso> noprompt commit`

This document covers Method A and Method B.

2. Release 7.3.2 introduces the following new PIDs:
 - a. NC57-36H6D-S
 - b. QDD-400G-ZRP-S
3. Following cards will not be supported from release 7.3.2:
 - a. N/A

1.4 Cisco Software Manager

Cisco Software Manager (CSM) can be used to manage SMUs, to create your own SMU tar ball, or find out which SMUs are applicable to your network. More information on CSM: [Download CSM/CSM Documentation](#)

1.5 Mandatory SMUs

The following table outlines the SMUs that must be installed for upgrade and downgrade procedure.

Table 1: Needed Mandatory SMUs

| Release | Mandatory/Optional SMUs | |
|---------|-------------------------|----------------|
| | Upgrade SMUs | Downgrade SMUs |
| R7.0.x | CSCvv35484 | N/A |
| R7.1.x | CSCvv35484 | N/A |
| R7.2.x | CSCvv35484 | N/A |

****Note:** install add using tar file may fail with 7.x.x release (except 7.2.2). Bridge SMU for CSCvv35484 can be used to avoid this issue

1.6 Packages for Upgrade

Following files are available to download for various boot options:

Table 2: IOS-XR Software files available for download

| # | File | Contents | Comment |
|---|----------------------------|-------------------------------|-----------------------------------|
| 1 | NCS5500-iosxr-7.3.2.tar | NCS 5500 IOS XR Software | Contains all rpms except k9sec |
| 2 | NCS5500-iosxr-k9-7.3.2.tar | NCS 5500 IOS XR Software 3DES | Contains all rpms including k9sec |
| 3 | ncs5500-usb_boot-7.3.2.zip | NCS 5500 IOS XR Software | Contains USB Boot Package |
| 4 | NCS5500-docs-7.3.2.tar | NCS5500 IOS XR Documentation | Contains all documentation |

1.7 Required Package files

Mini ISO Package is mandatory to perform the System Upgrade and upgrade needs to be done from XR VM. Additional XR packages listed below are needed depending on the router configuration and required features:

| Description | Package Name |
|--------------|--|
| Boot Image | ncs5500-mini-x-7.3.2.iso [Boot image] |
| mpls | ncs5500-mpls-2.1.0.0-r732.x86_64.rpm |
| mpls-rsvp-te | ncs5500-mpls-te-rsvp-3.1.0.0-r732.x86_64.rpm |
| multicast | ncs5500-mcast-3.0.0.0-r732.x86_64.rpm |
| ospf | ncs5500-ospf-3.0.0.0-r732.x86_64.rpm |
| isis | ncs5500-isis-2.1.0.0-r732.x86_64.rpm |
| eigrp | ncs5500-eigrp-1.0.0.0-r732.x86_64.rpm |
| li | ncs5500-li-1.0.0.0-r732.x86_64.rpm |
| k9sec | ncs5500-k9sec-3.2.0.0-r732.x86_64.rpm |
| mgbl | ncs5500-mgbl-3.0.0.0-r732.x86_64.rpm |

2 Pre-Upgrade Task

Note: Config backup, precheck, Image download, tar file copy to router and install add are hitless operation and can be done outside of MW.

2.1 Configuration Backup

- Copy the running-configuration to a harddisk: on the router.

```
RP/0/RP0/CPU0:55XX# copy running-config harddisk:/running_config
```

- Copy the running-configuration to a remote scp server

```
RP/0/RP0/CPU0:55XX#scp harddisk:/<file name>  
root@10.1.1.1:/auto/config/.
```

2.2 System Stability check

- The following commands should be executed to verify basic system stability before the upgrade. At the XR prompt:

| | |
|--|---|
| show platform | verify that all nodes are in "IOS XR RUN/OPERATIONAL" state |
| show platform vm | verify that all nodes are in "FINAL Band" state |
| show redundancy | verify that a Standby RP is available and the system is in "NSR-ready" state |
| show ipv4 interface brief <or> show ipv6 interface brief <or> show interface summary | verify that all necessary interfaces are "UP" |
| show install active | verify that the proper set of packages are active |
| admin show install active | verify on sysadmin plane |
| show install committed | verify that the proper set of committed packages are same as active. If not, execute 'install commit' |
| cfs check/clear configuration inconsistency | verify/fix configuration file system |
| show hw-module fpd | Ensure all the FPD versions status are CURRENT Please refer to "Field Programmable Versions Document" for FPD version information. |
| show alarms | Shows any outstanding alarms in system |
| admin show environment all | Shows temperature, Fan, Voltage, Power status |

| | |
|---|--|
| admin show led | Shows LED status |
| show media (both XR and Admin mode) | Shows the disk usage in XR and admin state |
| show inventory | Shows chassis inventory information |
| show logging | Capture show logging to check for any errors |

2.3 Cost out IGP:

Cost-out IGP: To minimize traffic loss during the upgrade please follow below steps:

For OSPF use “max-metric” command.

```
RP/0/RP0/CPU0:55XX(config-ospf)# max-metric router-lsa
```

For ISIS use “spf-overload-bit” command.

```
RP/0/RP0/CPU0:55XX(config-isis)# set-overload-bit
```

2.4 Enable auto-fpd upgrade:

Enable auto FPD auto upgrade from XR and Sysadmin.

```
RP/0/RP0/CPU0:55XX(config)#fpd auto-upgrade enable
RP/0/RP0/CPU0:55XX(config)#commit
```

2.5 Disk Cleanup:

Check available space in install repository. At least 2GB of free space is required to perform System upgrade. If copying the packages and SMU's to the harddisk ensure 50% free space on the harddisk. Check in Both XR and admin plane

XR:

```
RP/0/RP0/CPU0:55XX# show media location 0/RP0/CPU0
RP/0/RP0/CPU0:55XX# show media location 0/RP1/CPU0
```

Admin:

```
sysadmin-vm:0_RP0# show media location 0/RP0
sysadmin-vm:0_RP0# show media location 0/RP1
```

Check inactive packages and remove them before upgrading in XR and Admin plane.

XR:

```
RP/0/RP0/CPU0:55XX#install remove inactive all
```


Admin:

```
sysadmin-vm:0_RP0# install remove inactive
```

Check and delete core files and any other files which are not required in harddisk in XR and admin plane

XR:

```
RP/0/RP0/CPU0:55XX#run
[xr-vm_node0_RP0_CPU0:~]$cd /misc/disk1
[xr-vm_node0_RP0_CPU0:/misc/disk1]$rm *core*
```

Admin:

```
RP/0/RP0/CPU0:55XX#admin
sysadmin-vm:0_RP0# run
[sysadmin-vm:0_RP0:~]$ cd /misc/disk1
[sysadmin-vm:0_RP0:~]$ rm *core*
```

3 Software Upgrade

All System Upgrade related install operations should be done in the XR VM plane. The optional packages (mpls, mcast, mgbl etc.) that are being installed/upgraded must match the active packages, else the install will fail. Two methods are explained below for software upgrade procedure.

A] Install add/activate method:

- Download 7.3.2 image from CCO.

Copy tar file to scp server. Verify the contents of the tar file.

- Copy the 7.3.2 tar file to the router harddisk and verify that file is copied successfully

```
RP/0/RP0/CPU0:55XX#scp root@10.1.1.1://auto/<image file> /misc/disk1/.
```

```
RP/0/RP0/CPU0:PE7#scp prpothul@172.16.1.1:/auto/tftp-  
gud/sit/732/NCS5500-iosxr-k9-7.3.2.tar harddisk:/
```

```
Tue Oct 12 21:30:42.541 PDT
```

```
Connecting to 172.16.1.1...
```

```
Password:
```

```
Transferred 2037114880 Bytes
```

```
2037114880 bytes copied in 198 sec (10241595)bytes/sec
```

- Verify the md5 checksum of the tar/individual rpms with the original MD5 values on CCO

```
[xr-vm_node0_RP0_CPU0:/harddisk:]$md5sum NCS5500-iosxr-k9-7.3.2.tar
```

```
[xr-vm_node0_RP0_CPU0:/harddisk:]$md5sum NCS5500-iosxr-k9-7.3.2.tar  
676e2949d976b00d1e5b43ae319bfd6 NCS5500-iosxr-k9-7.3.2.tar
```

- Perform 'install add' of NCS5500-iosxr-k9-7.3.2.tar file:

```
RP/0/RP0/CPU0:55XX#install add source harddisk:/ NCS5500-iosxr-k9-  
7.3.2.tar
```

```
RP/0/RP0/CPU0:PE7#install add source harddisk:/ NCS5500-iosxr-k9-  
7.3.2.tar
```

```
Tue Oct 12 21:50:42.541 PDT
```

```
Oct 12 21:50:42 Install operation 447 started by root:
```

```
install add source harddisk:/ NCS5500-iosxr-k9-7.3.2.tar
```

```
Oct 12 21:50:43 Install operation will continue in the background
```

- Take a note of the install operation id generated by the add operation in previous step

```
Install operation id# 447 finished successfully
```

RP/0/RP0/CPU0:PE7#Oct 12 21:54:42 Install operation 447 finished successfully

- **Add recommended SMUs for 7.3.2 if not already in initial tarball (optional)**

RP/0/RP0/CPU0:55XX#install add source harddisk: <mandatory SMU tar file>

N/A

- **Take a note of the install operation id generated by the add operation in previous step**

Install operation **id# 448** finished successfully

- **Prepare the packages added before**

RP/0/RP0/CPU0:55XX#install prepare id 447

RP/0/RP0/CPU0:PE7#install prepare id 447

Tue Oct 12 21:56:47.541 PDT

Oct 12 21:56:47 Install operation 448 started by root:

install prepare id 447

2021-10-12 21:57:00:: Package list:

2021-10-12 21:57:00:: ncs5500-k9sec-3.2.0.0-r732.x86_64

2021-10-12 21:57:00:: ncs5500-isis-2.1.0.0-r732.x86_64

2021-10-12 21:57:00:: ncs5500-eigrp-1.0.0.0-r732.x86_64

2021-10-12 21:57:00:: ncs5500-mppls-2.1.0.0-r732.x86_64

2021-10-12 21:57:00:: ncs5500-li-1.0.0.0-r732.x86_64

2021-10-12 21:57:00:: ncs5500-mgbl-3.0.0.0-r732.x86_64

2021-10-12 21:57:00:: ncs5500-mcast-3.0.0.0-r732.x86_64

2021-10-12 21:57:00:: ncs5500-mppls-te-rsvp-3.1.0.0-r732.x86_64

2021-10-12 21:57:00:: ncs5500-ospf-3.0.0.0-r732.x86_64

2021-10-12 21:57:00:: ncs5500-mini-x-7.3.2

2021-10-12 21:57:00:: Install operation will continue in the background

RP/0/RP0/CPU0:PE7#

Or (if SMU was added)

RP/0/RP0/CPU0:55XX#install prepare id 447 448

- **Activate all the packages**

RP/0/RP0/CPU0:55XX#install activate

RP/0/RP0/CPU0:PE7#install activate

Tue Oct 12 22:02:48.667 PDT

Oct 12 22:02:48 Install operation 449 started by root:

install activate

```
This install operation will reload the system, continue?
[yes/no]:[yes] yes
Oct 12 22:02:51 Install operation will continue in the background
```

```
RP/0/RP0/CPU0:PE7#Oct 12 22:09:04 Install operation 449 finished
successfully
```

- Router will reload at the end of activation to start using the new packages.



This operation may take up to 30 minutes to complete.

- Verify that all the packages are installed correctly in XR and SysAdmin

```
RP/0/RP0/CPU0:55xx#show install active summary
Label : 7.3.2
```

```
Active Packages: 10
  ncs5500-xr-7.3.2 version=7.3.2 [Boot image]
  ncs5500-mppls-2.1.0.0-r732
  ncs5500-mppls-te-rsvp-3.1.0.0-r732
  ncs5500-isis-2.1.0.0-r732
  ncs5500-li-1.0.0.0-r732
  ncs5500-ospf-3.0.0.0-r732
  ncs5500-eigrp-1.0.0.0-r732
  ncs5500-mcast-3.0.0.0-r732
  ncs5500-mgbl-3.0.0.0-r732
  ncs5500-k9sec-3.2.0.0-r732
```

```
sysadmin-vm:0_RP0# show install active summary
Wed Oct 13 19:20:18.401 UTC+00:00
Active Packages: 1
  ncs5500-sysadmin-7.3.2 version=7.3.2 [Boot image]
```

```
sysadmin-vm:0_RP0#
```

- Verify system stability through commands described under Check System Stability section (2.2) after router comes up with new software
- Verify show version to check router is upgraded.

```
RP/0/RP0/CPU0:55xx#show version
Tue Oct 12 22:40:49.918 PDT
Cisco IOS XR Software, Version 7.3.2
Copyright (c) 2013-2021 by Cisco Systems, Inc.
```

Build Information:

```
Built By      : ingunawa
Built On      : Sun Oct 10 05:03:53 PDT 2021
Built Host    : iox-ucs-023
Workspace     : /auto/iox-ucs-023-san2/prod/7.3.2/ncs5500/ws
```

```
Version      : 7.3.2
Location     : /opt/cisco/XR/packages/
Label       : 7.3.2
```

```
cisco NCS-5500 () processor
System uptime is 30 minutes
```

- Check to see if there were any failed startup configurations.

```
RP/0/RP0/CPU0:PE7#show configuration failed startup
Mon Feb 26 14:03:54.914 PDT
!!18:43:54 UTC Fri Feb 26 2021
```

- Execute 'install commit' to commit the newly active software (install commit is required after any install activate operation else after router reload, nodes will go back to previously committed software)

```
RP/0/RP0/CPU0:55XX#install commit
```

B] Single command upgrade method:

More information on this method can be found at below link :

<https://www.cisco.com/c/en/us/td/docs/iosxr/ncs5500/system-setup/73x/b-system-setup-cg-ncs5500-73x/manage-automatic-dependency.html>

- Download 7.3.2 image from CCO.
Copy tar file to scp server. Verify the contents of the tar file.
- Verify the md5 checksum of the tar/individual rpms with the original MD5 values on CCO.
- Untar the downloaded NCS5500-iosxr-k9-7.3.2.tar file on remote server. Create image folder in router /harddisk:/. Copy iso and rpms from server to router.

```
[xr-vm_node0_RP0_CPU0:/harddisk:/image]$ls -ltr
ncs5500-mini-x-7.3.2.iso
ncs5500-eigrp-1.0.0.0-r732.x86_64.rpm
ncs5500-isis-2.1.0.0-r732.x86_64.rpm
ncs5500-k9sec-3.2.0.0-r732.x86_64.rpm
ncs5500-li-1.0.0.0-r732.x86_64.rpm
ncs5500-mcast-3.0.0.0-r732.x86_64.rpm
```

```

ncs5500-mgbl-3.0.0.0-r732.x86_64.rpm
ncs5500-mpis-2.1.0.0-r732.x86_64.rpm
ncs5500-mpis-te-rsvp-3.1.0.0-r732.x86_64.rpm
ncs5500-ospf-3.0.0.0-r732.x86_64.rpm
[xr-vm_node0_RP0_CPU0:/harddisk:/image]$

```

- **Execute single command to upgrade**

```

RP/0/RP0/CPU0:55xx#install source /harddisk:/image/ ncs5500-mini-x-
7.3.2.iso noprompt
+++++
2021-10-11 17:46:37 Install operation 175 started by root:
2021-10-11 17:46:37   install source /harddisk:/image/ ncs5500-mini-x-
7.3.2.iso noprompt
2021-10-11 17:46:37 No install operation in progress at this moment
2021-10-11 17:46:37 Checking system is ready for install operation
2021-10-11 17:46:39 'install source' in progress
2021-10-11 17:46:39 ISO ncs5500-mini-x-7.3.2.iso in input package list.
Going to upgrade the system to version 7.3.2.
2021-10-11 17:46:40 Scheme : localdisk
2021-10-11 17:46:40 Hostname : localhost
2021-10-11 17:46:40 Username : None
2021-10-11 17:46:40 SourceDir : /harddisk:/image/
2021-10-11 17:46:40 Collecting software state..
2021-10-11 17:46:40 Getting platform
2021-10-11 17:46:40 Getting supported architecture
2021-10-11 17:46:40 Getting active packages from XR
2021-10-11 17:46:40 Getting inactive packages from XR
2021-10-11 17:46:43 Getting list of RPMs in local repo
2021-10-11 17:46:45 Getting list of provides of all active packages
2021-10-11 17:46:45 Getting provides of each rpm in repo
2021-10-11 17:46:45 Getting requires of each rpm in repo
2021-10-11 17:46:45 Fetching .... ncs5500-mgbl-3.0.0.0-r732.x86_64.rpm
2021-10-11 17:46:45 Fetching .... ncs5500-li-1.0.0.0-r732.x86_64.rpm
2021-10-11 17:46:45 Fetching .... ncs5500-eigrp-1.0.0.0-r732.x86_64.rpm

2021-10-11 17:46:45 Fetching .... ncs5500-isis-2.1.0.0-r732.x86_64.rpm
2021-10-11 17:46:45 Fetching .... ncs5500-k9sec-3.2.0.0-r732.x86_64.rpm
2021-10-11 17:46:45 Fetching .... ncs5500-mpis-2.1.0.0-r732.x86_64.rpm
2021-10-11 17:46:45 Fetching .... ncs5500-mini-x-7.3.2.iso
2021-10-11 17:47:01 Fetching .... ncs5500-mcast-3.0.0.0-r732.x86_64.rpm
2021-10-11 17:47:01 Fetching .... ncs5500-ospf-3.0.0.0-r732.x86_64.rpm
2021-10-11 17:47:01 Fetching .... ncs5500-mpis-te-rsvp-3.1.0.0-
r732.x86_64.rpm
2021-10-11 17:47:02 Adding packages
      ncs5500-mpis-te-rsvp-3.1.0.0-r732.x86_64.rpm
      ncs5500-isis-2.1.0.0-r732.x86_64.rpm

```

```
ncs5500-k9sec-3.2.0.0-r732.x86_64.rpm
ncs5500-mgbl-3.0.0.0-r732.x86_64.rpm
ncs5500-mcast-3.0.0.0-r732.x86_64.rpm
ncs5500-mini-x-7.3.2.iso
ncs5500-mppls-2.1.0.0-r732.x86_64.rpm
ncs5500-eigrp-1.0.0.0-r732.x86_64.rpm
ncs5500-ospf-3.0.0.0-r732.x86_64.rpm
ncs5500-li-1.0.0.0-r732.x86_64.rpm
2021-10-11 17:47:02 Allocated operation ID 176 for install add
2021-10-11 17:47:44 Activating ncs5500-li-1.0.0.0-r732 ncs5500-ospf-
3.0.0.0-r732 ncs5500-mppls-te-rsvp-3.1.0.0-r732 ncs5500-mppls-2.1.0.0-
r732 ncs5500-isis-2.1.0.0-r732 ncs5500-mgbl-3.0.0.0-r732 ncs5500-k9sec-
3.2.0.0-r732 ncs5500-mcast-3.0.0.0-r732 ncs5500-mini-x-7.3.2
2021-10-11 17:47:45 Optimized list to prepare after sanitizing input
list for superseded packages:
ncs5500-li-1.0.0.0-r732
ncs5500-ospf-3.0.0.0-r732
ncs5500-mppls-te-rsvp-3.1.0.0-r732
ncs5500-mppls-2.1.0.0-r732
ncs5500-isis-2.1.0.0-r732
ncs5500-mgbl-3.0.0.0-r732
ncs5500-eigrp-1.0.0.0-r732
ncs5500-k9sec-3.2.0.0-r732
ncs5500-mcast-3.0.0.0-r732
ncs5500-mini-x-7.3.2
2021-10-11 17:47:45 Package list:
2021-10-11 17:47:45 ncs5500-li-1.0.0.0-r732
2021-10-11 17:47:45 ncs5500-eigrp-1.0.0.0-r732
2021-10-11 17:47:45 ncs5500-ospf-3.0.0.0-r732
2021-10-11 17:47:45 ncs5500-mppls-te-rsvp-3.1.0.0-r732
2021-10-11 17:47:45 ncs5500-mppls-2.1.0.0-r732
2021-10-11 17:47:45 ncs5500-isis-2.1.0.0-r732
2021-10-11 17:47:45 ncs5500-mgbl-3.0.0.0-r732
2021-10-11 17:47:45 ncs5500-k9sec-3.2.0.0-r732
2021-10-11 17:47:45 ncs5500-mcast-3.0.0.0-r732
2021-10-11 17:47:45 ncs5500-mini-x-7.3.2
2021-10-11 17:47:45 Action 1: install prepare action started
2021-10-11 17:47:45 Triggering prepare operation.
This may take a while...
2021-10-11 17:53:03 Action 1: install prepare action completed
successfully
2021-10-11 17:53:17 Prepare operation completed. Trigger activate.
This may take a while...
2021-10-11 17:53:17 Prepare completed. Operation ID 175 will be taken
up for activate operation
2021-10-11 17:53:17 Activate operation ID is: 175 for 'install source'
ID:175
2021-10-11 17:53:19 Install operation 175 started by root:
install activate noprompt synchronous
```

```

2021-10-11 17:53:20 Action 1: install activate action started
2021-10-11 17:53:20 The software will be activated with reload upgrade
2021-10-11 17:53:22 Following nodes are available for System Upgrade
activate:
2021-10-11 17:53:22  0/0 0/1 0/2 0/3 0/FC1 0/FC3 0/FC5 0/RP0 0/RP1
0/SC0 0/SC1
2021-10-11 17:55:42 Action 1: install activate action completed
successfully
2021-10-11 17:55:51 Install operation 175 finished successfully
2021-10-11 17:55:51 Ending operation 175
Connection to 1.74.18.22 closed by remote host.
Connection to 1.74.18.22 closed.
-bash-4.2$

```

- Router will reload at the end of activation to start using the new packages.



Note

This operation may take up to 30 minutes to complete.

- Verify that all the packages are installed correctly in XR and SysAdmin

```

RP/0/RP0/CPU0:55xx#show install active summary
Label : 7.3.2

```

```

Active Packages: 10
ncs5500-xr-7.3.2 version=7.3.2 [Boot image]
ncs5500-mpis-2.1.0.0-r732
ncs5500-mpis-te-rsvp-3.1.0.0-r732
ncs5500-isis-2.1.0.0-r732
ncs5500-li-1.0.0.0-r732
ncs5500-ospf-3.0.0.0-r732
ncs5500-eigrp-1.0.0.0-r732
ncs5500-mcast-3.0.0.0-r732
ncs5500-mgbl-3.0.0.0-r732
ncs5500-k9sec-3.2.0.0-r732

```

```

sysadmin-vm:0_RP0# show install active summary
Wed Oct 13 19:20:18.401 UTC+00:00
Active Packages: 1
ncs5500-sysadmin-7.3.2 version=7.3.2 [Boot image]

```

```

sysadmin-vm:0_RP0#

```

- Verify system stability through commands described under Check System Stability section (2.2) after router comes up with new software
- Verify show version to check router is upgraded.

```

RP/0/RP0/CPU0:55xx#show version
Tue Oct 12 22:40:49.918 PDT
Cisco IOS XR Software, Version 7.3.2

```


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Build Information:

Built By : ingunawa
Built On : Sun Oct 10 05:03:53 PDT 2021
Built Host : iox-ucs-023
Workspace : /auto/iox-ucs-023-san2/prod/7.3.2/ncs5500/ws
Version : 7.3.2
Location : /opt/cisco/XR/packages/
Label : 7.3.2

cisco NCS-5500 () processor
System uptime is 30 minutes

- Check to see if there were any failed startup configurations.

```
RP/0/RP0/CPU0:55xx#show configuration failed startup  
Wed Oct 13 19:20:18.914 PDT
```

- Execute 'install commit' to commit the newly active software (install commit is required after any install activate operation else after router reload, nodes will go back to previously committed software)

```
RP/0/RP0/CPU0:55XX#install commit
```

4 Post Upgrade Tasks

- Disk cleanup: Once software upgrade has been completed, disk space can be recovered by removing any inactive packages that are no longer needed (if the packages are required at a later time, they can be re-added):

```
RP/0/RP0/CPU0:55XX#install remove inactive all
```

- Verify/fix configuration file system (mandatory):

```
RP/0/RP0/CPU0:55XX#cfs check
```

- Verify fpd versions running are current:

```
RP/0/RP0/CPU0:55XX#show hw-module fpd
```

- Restore IGP metric if changed before the upgrade (this is done from xr vm)

OSPF

```
RP/0/RP0/CPU0:55XX# (config-ospf)# no max-metric router-lsa
```

ISIS

```
RP/0/RP0/CPU0:55XX# (config-isis)# no set-overload-bit
```

5 Other Boot Options (GISO/IPXE/USB)

Please refer to <https://www.cisco.com/c/en/us/td/docs/iosxr/ncs5500/system-setup/73x/b-system-setup-cg-ncs5500-73x.html> for various boot options:

Router Bring up:

<https://www.cisco.com/c/en/us/td/docs/iosxr/ncs5500/system-setup/73x/b-system-setup-cg-ncs5500-73x/bring-up-the-router.html>

GISO:

<https://www.cisco.com/c/en/us/td/docs/iosxr/ncs5500/system-setup/73x/b-system-setup-cg-ncs5500-73x/customize-installation-using-giso.html>

IPXE and USB Boot option:

<https://www.cisco.com/c/en/us/td/docs/iosxr/ncs5500/system-setup/73x/b-system-setup-cg-ncs5500-73x/perform-disaster-recovery.html>

6 FPD Upgrade

Fpd auto-upgrade feature if configured on router should take care of fpd upgrade. Manual fpd upgrade can be performed after 7.3.2 upgrade is install committed. Run the “show hw-module fpd location all” command to check which firmware files need to be upgraded, by inspecting the Upg/Dng column. If there is any ‘Yes’ marked, manual upgrade is required. After Manual upgrade, a reload is required for the fpd to take effect. Issue the following command to upgrade FPD:

```
RP/0/RP0/CPU0:router#upgrade hw-module location all fpd all
```

Auto-FPD requirements:

N/A

7 Downgrade from 7.3.2 IOS XR Release

Downgrade can be performed by following options.

1) Disable fpd auto-upgrade

Option 1: If install commit was not done post upgrade, a router reload will bring it back to previous install committed image

Option 2: If downgrade image is part of inactive packages (the mini ISO is broken down into individual ISOs (XR, sysadmin and host) ex – ncs5500-mini-x-7.3.2, ncs5500-xr-7.3.2

`install remove ncs5500-mini-x-7.3.2` (This will remove the mini as well as individual ISOs) and then `install add *mini.iso` .

Install prepare, activate the packages along with iso.

Option 3: install add downgrade image iso +rpm, prepare and activate

Example:

```
install add source harddisk: <tar file>
```

```
install prepare id 10
```

```
install activate id 11 noprompt
```

Note: Please do refer the caveats for known anomalies.

7.1 Post Downgrade Tasks

- Disk cleanup: Once software upgrade has been completed, disk space can be recovered by removing any inactive packages that are no longer needed (if the packages are required at a later time, they can be re-added):

```
RP/0/RP0/CPU0:55XX#install remove inactive all
```

- Verify/fix configuration file system (mandatory):

```
RP/0/RP0/CPU0:55XX#cfs check
```

- Verify fpd versions running are current:

```
RP/0/RP0/CPU0:55XX#show hw-module fpd
```

- Restore IGP metric if changed before the upgrade (this is done from xr vm)

OSPF

```
RP/0/RP0/CPU0:55XX(config-ospf)# no max-metric router-lsa
```

ISIS

```
RP/0/RP0/CPU0:55XX(config-isis)# no set-overload-bit
```

8 Caveats

Software Upgrade from IOS-XR 6.6.x and older release to IOS-XR 7.3.2 release

Upgrade from IOS-XR 6.6.3 and older release to IOS-XR 7.3.2 release for NCS5501 and NCS5502 platforms may fail because of low free space in the install partition.

The recommendation is to first move to 7.x.x release and then upgrade to 7.3.2 release (if upgrade is done using install add and activate).

Alternatively, GISO/iPXE upgrade can be used for upgrade.

Software Upgrade from IOS-XR 7.x.x to IOS-XR 7.3.2 release

Upgrade from IOS-XR 7.x.x release to IOS-XR 7.3.2 release for NCS5501 and NCS5502 platforms may fail when using wildcard during activate, because of low free space in the install partition.

Optimized upgrade feature, to avoid the issue because of low free space in install partition, helps to avoid NCS5501/NCS5502 upgrade issues from IOS-XR 7.x.x to IOS-XR 7.3.2 release. This feature however is not available when install activate is done using wildcard (install activate pkg *7.3.2* *732*).

install id or full package names can be used to avoid this issue.

Software Upgrade to IOS-XR 7.3.2 using tar file with "install add source <> <img.tar>"

"install add source <> img.tar" of IOS-XR 7.3.2 image fail for NCS5501 and NCS5502 when using tar file to perform "install add". This applies to IOS-XR 7.x.x except IOS-XR 7.2.2

This issue can be avoided if "install add" is done with packages listed inline during "install add".

Alternatively, a Bridge SMU (DDTS id: CSCvv35484, planned for IOS-XR 7.0.2 and IOS-XR 7.1.2 release) can be used to perform install add when using tar files.