



Cisco NCS5500

IOS-XR Release 7.1.1

IOS-XR System Upgrade Procedure



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Purpose, Scope and Audience

This document provides information on the two methods available for system upgrade for NCS5500 Series platforms from software version 6.6.3 to 7.1.1



Note

This document covers NGX to NGX upgrade procedure only.

Platform	From	To
NCS5500 Modular Chassis	6.6.3	7.1.1

Cisco Software Manager (CSM) can be used to manage Image, SMUs and SPs. It can help create your own SMU tar ball or find out which SMUs/SPs are applicable to your network. More information on CSM:

[CSM Download page](#)
[User Documentation](#)

It's highly recommended that CSM be used to come up with a list of optimized set of SMUs or Service Packs that should be installed on the release that is going to be deployed. SMUs/SP + Major release can be installed together in one install operation to save time and avoid multiple reloads.

However, in the absence of CSM, the MOP (Method of Procedure) described in this document can be followed for software upgrade of NCS5500 series routers.

Obtain 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-7.1.1.iso
mpls	ncs5500-mpls-2.1.0.0-r711.x86_64.rpm
mpls-rsvp-te	ncs5500-mpls-te-rsvp-3.1.0.0-r711
multicast	ncs5500-mcast-3.0.0.0-r711.x86_64.rpm
ospf	ncs5500-ospf-2.0.0.0-r711.x86_64.rpm
isis	ncs5500-isis-2.1.0.0-r711.x86_64.rpm
li	ncs5500-li-1.0.0.0-r711.x86_64.rpm
k9sec	ncs5500-k9sec-3.1.0.0-r711.x86_64.rpm
mgb1	ncs5500-mgbl-3.0.0.0-r711.x86_64.rpm

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@1.2.3.4:/auto/config/.
```

Pre-Upgrade Tasks

- 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 "OPERATIONAL" state)
#show platform vm (verify that all nodes are in "FINAL Band" state)
#show redundancy (verify that a Standby RP is available and in "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 commit (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)
#show pfm location all (Ensure no errors are present)
#show alarms
#admin show env all
#show media (both XR and Admin mode)
#show inventory
#show log
```

- **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
```

- 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
```

- Check available space in install repository and make sure that sufficient memory is available

```
sysadmin-vm:0_RP1# show media
```

- Check inactive packages and remove them before upgrading.

```
XR: RP/0/RP0/CPU0:55XX# install remove inactive all
Sysadmin: sysadmin-vm:0_RP0# show install inactive
```

- Check and delete corefiles and any other files which are not required in harddisk

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

Software Upgrade

Classic Method

All System Upgrade related install operations should be done in the XR VM plane.

- Download 7.1.1 image from CCO.
- Copy the 7.1.1 tar file to the router harddisk and verify that file is copied successfully

```
RP/0/RP0/CPU0:55XX#scp root@1.2.3.4://auto/<image file> /misc/disk1/.
```

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

```
[xr-vm_node0_RP0_CPU0:/misc/disk1]$md5sum 711.tar
```

- Perform 'install add' of 711 tar file:

```
RP/0/RP0/CPU0:55XX#install add source harddisk:/711.tar
```

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

```
Install operation 180 finished successfully
```

- Prepare the packages added before

```
RP/0/RP0/CPU0:55XX#install prepare id 180
```

- Activate all the packages

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

- 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
```

```
P/0/RP0/CPU0:5516#sho install active summary
```

```
Active Packages: 10
ncs5500-xr-7.1.1 version=7.1.1 [Boot image]
ncs5500-mcast-3.0.0.0-r711
ncs5500-mgbl-3.0.0.0-r711
ncs5500-k9sec-3.1.0.0-r711
ncs5500-isis-2.1.0.0-r711
ncs5500-li-1.0.0.0-r711
ncs5500-mp1s-2.1.0.0-r711
ncs5500-mp1s-te-rsvp-3.1.0.0-r711
ncs5500-ospf-2.0.0.0-r711
```

```
sysadmin-vm:0_RP0# show install active summary
```

Thu Jan 30 07:37:57.144 UTC+00:00

Active Packages: 1

ncs5500-sysadmin-7.1.1 version=7.1.1 [Boot image]

- 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
```

- Verify system stability through commands described under Check System Stability section (3.1) after router comes up with new software
- Verify show version to check router is upgraded.

```
RP/0/RP0/CPU0:55XX#show version
```

```
RP/0/RP0/CPU0:55XX#show version
```

Cisco IOS XR Software, Version 7.1.1

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Build Information:

Built By : deenayak

Built On : Mon Jan 27 01:36:26 PST 2020

Built Host : iox-lnx-076

Workspace : /auto/srcarchive15/prod/7.1.1/ncs5500/ws

Version : 7.1.1

Location : /opt/cisco/XR/packages/

Label : 7.1.1

cisco NCS-5500 () processor

System uptime is 7 minutes

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

```
RP/0/RP0/CPU0:55XX#show configuration failed startup
```

- Add recommended SMUs for 6.5.2 if not already in initial tarball (optional)

```
RP/0/RP0/CPU0:55XX#install add source harddisk: <mandatory SMU tar file for 6.5.2>
```

- Activate the recommended SMUs (if recommended smu's were added)

```
RP/0/RP0/CPU0:55XX#install activate id <add id of previous step>
```

- Enter 'yes' to reload prompt
- After system comes up from reload, execute 'install commit'

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
```

Caveats

There are no caveats for System Downgrade to 663 from 711

Software Downgrade:

Classic Method

All System Upgrade related install operations should be done in the XR VM plane.

- Download 6.6.3 mini ISO and packages tar and SMUs from CCO.
Copy tar file to tftp / scp / ftp server. Verify the contents of the tar file"
- Copy the 6.6.3 tar file to the router harddisk and verify that file is copied successfully

```
RP/0/RP0/CPU0:55XX#scp root@1.2.3.4://image/CCO/NCS5500-iosxr-k9-6.6.3.tar
```

- Verify the md5 checksum of the tar/individual rpms with the original MD5 values on CCO
bash-4.2\$ md5sum NCS5500-iosxr-k9-6.6.3.tar

```
f614aa310d988b2d36caa94e321537a9 NCS5500-iosxr-k9-6.6.3.tar
```

- [xr-vm_node0_RP0_CPU0:/misc/disk1]\$md5sum NCS5500-iosxr-k9-6.6.3.tar
- f614aa310d988b2d36caa94e321537a9 NCS5500-iosxr-k9-6.6.3.tar
[xr-vm_node0_RP0_CPU0:/misc/disk1]\$

- Perform 'install add' of 711 tar file:

```
RP/0/RP0/CPU0:55XX#install add source harddisk:/ NCS5500-iosxr-k9-6.6.3.tar
```

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

```
Install operation 629 finished successfully
```

- Prepare the packages added before

```
RP/0/RP0/CPU0:55XX#install prepare id 629
```

- Check 'show install log' is successful and for any errors

```
RP/0/RP0/CPU0:55XX#show install log 629
```

- Activate all the packages

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

- 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
sysadmin-vm:0_RP0# show install active
```

- 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
```

- Verify system stability through commands described under Check System Stability section (3.1) after router comes up with new software
- Verify show version to check router is upgraded.

```
RP/0/RP0/CPU0:55XX#show version
```

```
RP/0/RP0/CPU0:55XX#show version
```

Cisco IOS XR Software, Version 6.6.3

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Build Information:

Built By : hlo

Built On : Fri Dec 13 17:40:12 PST 2019

Built Host : iox-lnx-029

Workspace : /auto/srcarchive15/prod/6.6.3/ncs5500/ws

Version : 6.6.3

Location : /opt/cisco/XR/packages/

cisco NCS-5500 () processor

System uptime is 10 minutes

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

```
RP/0/RP0/CPU0:55XX#show configuration failed startup
```

- Add recommended SMUs for 6.6.3 if not already in initial tarball (optional)

```
RP/0/RP0/CPU0:55XX#install add source harddisk: <mandatory SMU tar file for 6.6.3>
```

- Activate the recommended SMUs (if recommended smu's were added)

```
RP/0/RP0/CPU0:55XX#install activate id <add id of previous step>
```

- Enter 'yes' to reload prompt
- After system comes up from reload, execute 'install commit'

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
```

Caveats

There are no caveats for System Upgrade to 6.6.3