



Cisco NCS5500

IOS-XR Release 6.5.3

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 6.1.x/6.2.x/6.3.x/6.5.x to 6.5.3



This document covers NGX to NGX upgrade procedure only.

Platform	Supported From	To
NCS5500 Modular Chassis	6.1.x/6.2.x/6.3.x /6.5.x	6.5.3

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. For more information on Service packs, see the following link, when possible it's always preferred to deploy Service Packs <http://www.cisco.com/c/en/us/support/docs/ios-nx-os-software/ios-xr-software/117550-technote-product-00.pdf>

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-6.5.3.iso version=6.5.3 [Boot image]
mpls	ncs5500-mpls-2.1.0.0-r653.x86_64.rpm
mpls-rsvp-te	ncs5500-mpls-te-rsvp-3.1.0.0-r653.x86_64.rpm
multicast	ncs5500-mcast-2.1.0.0-r653.x86_64.rpm
ospf	ncs5500-ospf-2.0.0.0-r653.x86_64.rpm
isis	ncs5500-isis-2.1.0.0-r653.x86_64.rpm
li	ncs5500-li-1.0.0.0-r653.x86_64.rpm
k9sec	ncs5500-k9sec-3.1.0.0-r653.x86_64.rpm
mgbl	ncs5500-mgbl-3.0.0.0-r653.x86_64.rpm

Configuration Backup

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

```
router# copy running-config harddisk:<filename>
```

- Copy the running-configuration to a remote tftp server

```
router# copy running-config tftp://<tftp server IP Address >/<TFTP Server Location>
```

For Example:

```
copy running-config tftp://223.255.254.25/auto/tftp-gyre/user1/running_cfg
```

Install Bridge SMUs

This section lists the *Bridge SMUs needed to perform a System Upgrade from 6.1.3/6.1.31/6.1.4/6.2.25/6.3.1 to 6.3.x/6.4.x/6.5.x image. Bridge SMUs will be available for download from CCO. Please refer the below table for bridge SMUs. Please install the bridge SMUs before upgrading to 6.3.x/6.4.x/6.5.x



Note

Bridge SMU: Here bridge SMU means all the mandatory SMUs required to upgrade to Target release from Base Release

Base (From) Release	Target (To) Release	Bridge SMU
6.1.3	6.3.x/6.4.x/6.5.x	CSCvf01652 (XR and SYSADMIN)
6.1.31	6.3.x/6.4.x/6.5.x	CSCvf01652 (XR and SYSADMIN)
6.1.4	6.3.x/6.4.x/6.5.x	CSCvf01652 (XR and SYSADMIN)
6.2.25	6.3.x/6.4.x/6.5.x	CSCvf01652 (XR and SYSADMIN)
6.3.1	6.3.x/6.4.x/6.5.x	CSCvf01652 (XR and SYSADMIN)
6.3.2	6.5.3	No Bridge SMU Required
6.3.3	6.5.3	No Bridge SMU Required



Note

Bridge SMU's activation is hitless and reload is not required

Before installing the SMU, run "clear configuration inconsistency from XR.

```
router# clear configuration inconsistency
```

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)
 Please refer to “**Field Programmable Versions Document**” for FPD version information.

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

For OSPF use “max-metric” command.

```
router(config-ospf)# max-metric router-lsa
```

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

```
router(config-isis)# set-overload-bit
```

- Enable auto FPD auto upgrade from XR and Sysadmin.

```
router(config)#fpd auto-upgrade enable
router(config)#commit
```

- Check available space in install repository. At least 2G 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.

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

- Check inactive packages and remove them before upgrading.

```
XR: RP/0/RSP0/CPU0:AGN_PE_13_9k#install remove inactive
```

```
Sysadmin: sysadmin-vm:0_RP0# show install inactive
```

Software Upgrade

Classic Method

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

SKIP THIS SECTION IF ‘[install update](#)’ CLI IS THE PREFERRED METHOD TO PERFORM A SYSTEM UPGRADE AND CONTINUE TO NEXT SECTION ([Software Upgrade – ‘install update’ CLI Method](#))

- Download 6.5.3 mini ISO and packages tar and SMUs from CCO.

Copy tar file to tftp / scp / ftp server. Verify the contents of the tar file”

```
sit-auto:185>
```

- Copy the 6.5.3 tar file to the router harddisk and verify that file is copied successfully

```
router#scp root@1.56.24.1:/auto/tftp-gud/sit/6.5.3/ncs5500/NCS5000-iosxr-k9-6.5.3.tar /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 NCS5000-iosxr-k9-6.5.3.tar
```

- Perform 'install add' of 652 tar file:

```
Router#install add source tftp://223.255.254.245/auto/tftp-  
gud/sit/6.5.3/ncs5500 NCS5000-iosxr-k9-6.5.3.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

```
router#install prepare id 180
```

- Check if install prepare is successful

```
router#show install prepare
```

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

```
router#show install log 181
```

- Activate all the packages

```
router#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

```
router#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)

```
router#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.

```
router#show version
```

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

```
router#show configuration failed startup
```

- Add recommended SMUs for 6.5.3 if not already in initial tarball (optional)

```
router#install add source harddisk: <mandatory SMU tar file for 6.5.3>
```

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

```
router#install activate id <add id of step 17>
```

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

'Install update' CLI Method

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

Skip this section if section '[Software Upgrade – Classic Method](#)' has been performed

- Download 6.5.3 mini ISO, packages tar and SMUs from CCO. Copy tar file to tftp / scp / ftp server directory.
- Extract tar file to the directory. Also, extract all 6.5.3 mandatory SMUs and copy to the same directory.

```
fretta-sit-auto:185> tar -xvf NCS5500-iosxr-k9-6.5.3.tar
```

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

```
[xr-vm_node0_RP0_CPU0:/misc/disk1]$md5sum NCS5500-iosxr-k9-6.5.3.tar
```

- Perform System Upgrade using 'install update' CLI.



Note

In 6.1.2 and beyond, no prompt option is introduced and can be use.

```
router#RP/0/RP0/CPU0:LS1#install upgrade source  
scp://root@123.100.103.28/auto/tftp-gud/sit/6.5.3/ncs5500/ NCS5000-iosxr-  
k9-6.5.3.tar
```

- Respond 'yes' to the reload prompt (sample output above). This step can be skipped if no prompt option was used.
- After user enter 'yes' to the reload prompt router will reload at the end of activation to start using the new packages. [This step can be skipped if no prompt option was used]



Note

This operation may take up to 30 minutes to complete.

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

```
router#show install active
```

- Verify show version to check router is upgraded to 652.

```
router#show version
```

- 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)

```
router#install commit
```

- Verify system stability through commands described under Check System Stability section (3.1) after router comes up with new software
- Check to see if there were any failed startup config.

```
router#show configuration failed startup
```

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):

```
router#install remove inactive all
```

- Verify/fix configuration file system (mandatory):

```
router#cfs check
```

- Verify fpd versions running are current:

```
router#show hw-module fpd
```

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

OSPF

```
router# (config-ospf)# no max-metric router-lsa
```

ISIS

```
router# (config-isis)# no set-overload-bit
```

Caveats

There are no caveats for System Upgrade to 6.5.3.