Cisco XRV9000
IOS-XR Release 25.1.2

IOS-XR System Upgrade/Downgrade Procedure

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Contents

Purpose, Scope and Audience 3
Obtain Required Package Files 3
Configuration Backup 4
Pre-Upgrade Tasks 4
Fresh boot 5
M7 Appliance CIMC boot 5
Classic Method 9
Post-Upgrade Tasks 11
Caveats 14

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Purpose, Scope and Audience

This document provides information on the two methods Classic and GISO methods available for system upgrade and downgrade for XRV9000 Series platforms from software version 24.4.1 to 25.1.2 and vice versa.

Note: Non-OE (below 24.4.1) to OE Migration image (24.1.1 and above) upgrade is not supported and vice versa. Fresh boot is required.

Upgrade		
V1	**V2**	**Bridge SMU**
2441	2512	N/A
2442	2512	N/A
2511	2512	N/A

Downgrade		
V1	**V2**	**Bridge SMU**
2512	2441	N/A
2512	2442	N/A
2512	2511	N/A

Note: Only above path is supported.

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:

Profile	Image used for Fresh reboot
M7 Appliance	xrv9k-fullk9-x.vrr-25.1.2.iso

Description	Package Name
Boot Image	xrv9k-mini-x-25.1.2.iso
mpls	xrv9k-mpls-1.0.0.0-r2512.x86_64.rpm
mpls-rsvp-te	xrv9k-mpls-te-rsvp-1.0.0.0-r2512.x86_64.rpm
multicast	xrv9k-mcast-1.0.0.0-r2512.x86_64.rpm
ospf	xrv9k-ospf-1.0.0.0-r2512.x86_64.rpm
Isis	xrv9k-isis-1.0.0.0-r2512.x86_64.rpm
Li	xrv9k-li-x-1.0.0.0-r2512.x86_64.rpm
Eigrp	xrv9k-eigrp-1.0.0.0-r2512.x86_64.rpm
k9sec	xrv9k-k9sec-1.0.0.0-r2512.x86_64.rpm
Mgbl	xrv9k-mgbl-1.0.0.0-r2512.x86_64.rpm

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Configuration Backup

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

```
RP/0/RP0/CPU0:XRV9000# copy running-config harddisk:/running_config
```

- Verify/fix configuration file system (mandatory):

```
RP/0/RP0/CPU0:XRV9000#cfs check
```

- Copy the running-configuration to a remote scp server

```
RP/0/RP0/CPU0:XRV9000#scp harddisk:/<file name> root@1.2.3.4:/auto/config/.
```

Pre-Upgrade Tasks

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

For OSPF use "max-metric" command.

```
RP/0/RP0/CPU0:XRV9000(config-ospf)# max-metric router-lsa
```

For ISIS use "spf-overload-bit" command.

```
RP/0/RP0/CPU0:XRV9000(config-isis)# set-overload-bit
```

- Check available space in install repository and delete unnecessary files/folder if needed to make sure that sufficient memory is available

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

```
Example : Harddisk required minimum 2GB during image staging.
```

- Check inactive packages and remove them before upgrading.

```
XR: RP/0/RP0/CPU0:XRV9000#install remove inactive all
Sysadmin: sysadmin-vm:0_RP0# show install inactive
```

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

```
RP/0/RP0/CPU0:XRV9000#run
[xr-vm_node0_RP0_CPU0:~]$cd /misc/disk1
[xr-vm_node0_RP0_CPU0:/misc/disk1]$rm *core*
```


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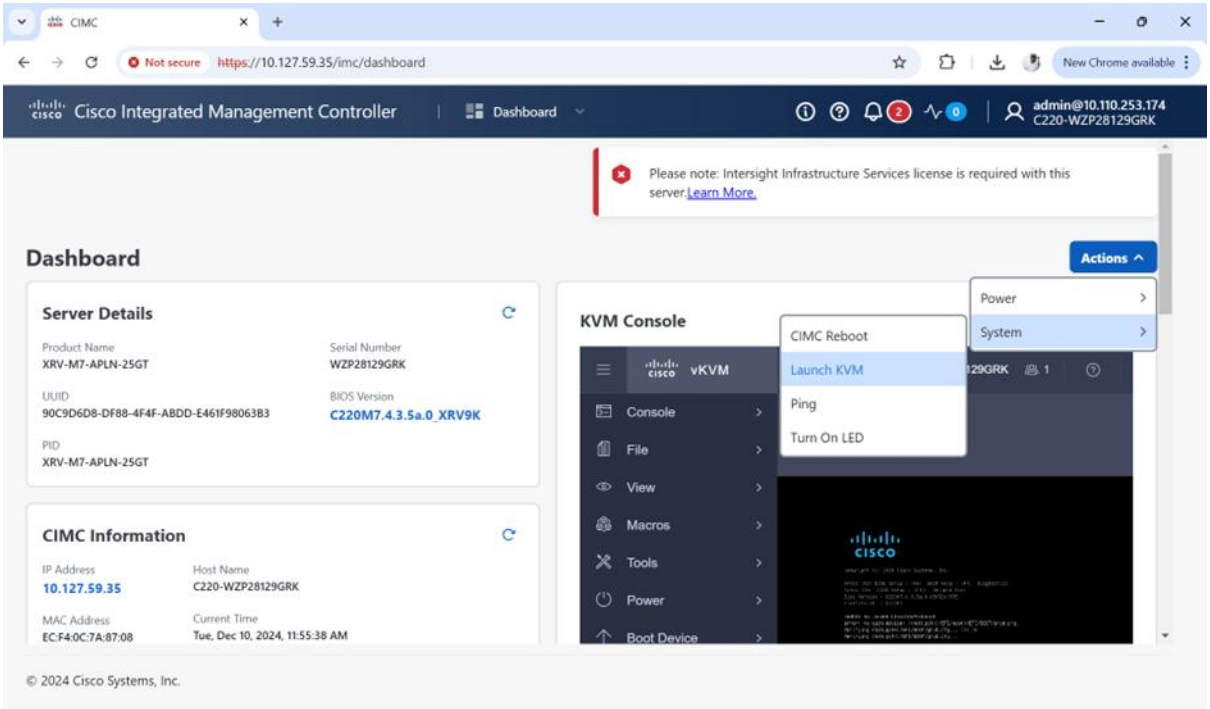
Fresh Boot

M7 Appliance – CIMC boot

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

- Download the xrv9k-fullk9-x.vrr-25.1.2.iso image (version 25.1.2) from Cisco CCO portal
- Copy OS installation ISO disk image files to your computer.
- Verify the md5 checksum of the tar/individual rpms with the original MD5 values on CCO
- If CIMC is not open, then log in
- In the Navigation pane, click the Launch KVM



- Select Virtual Media>Activate Virtual Device in the KVM console.

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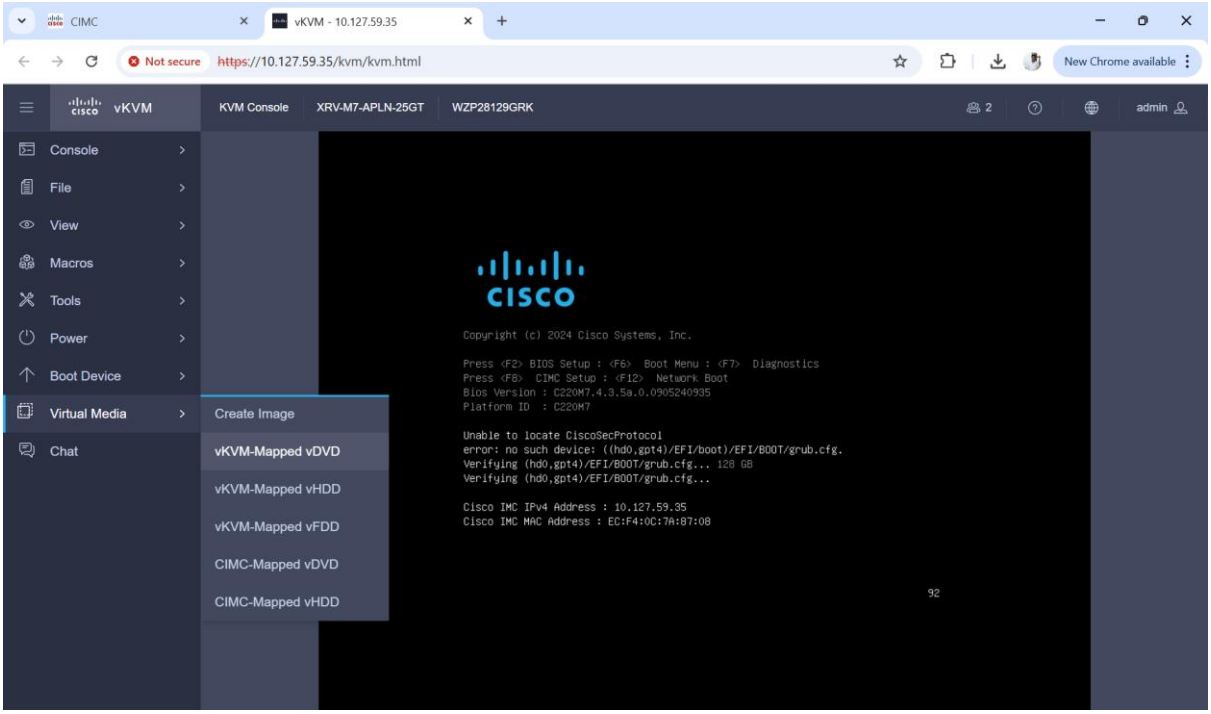
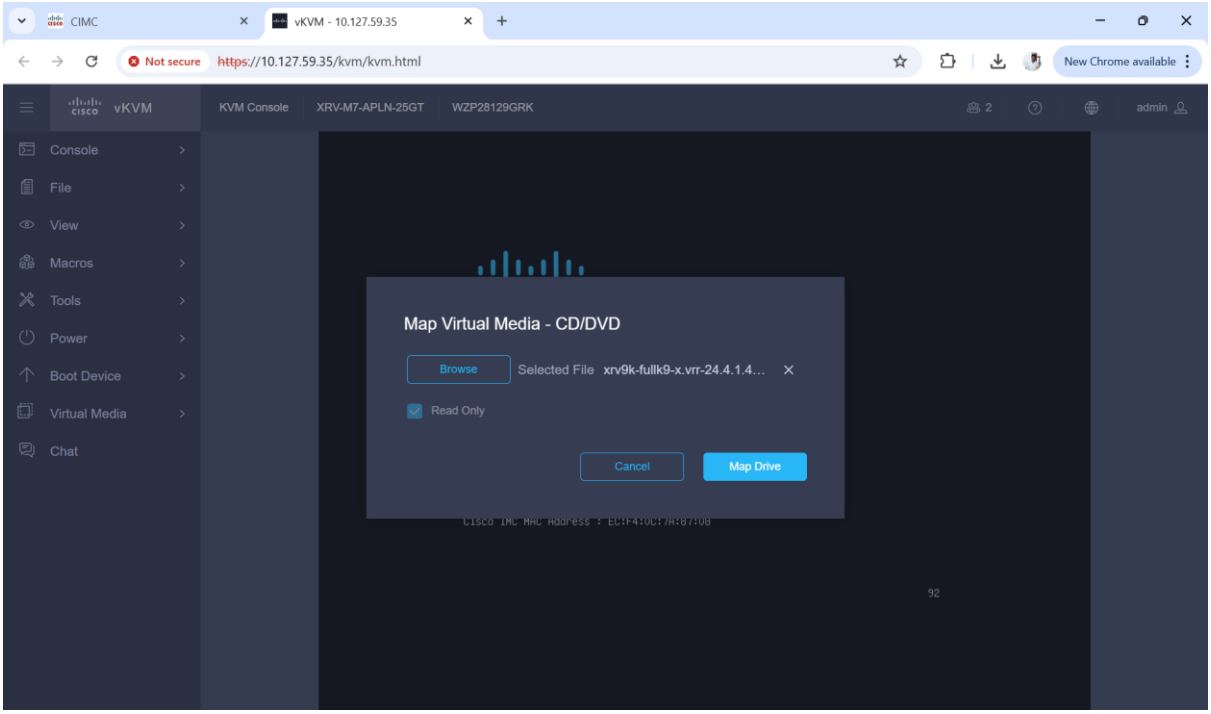


- Select Virtual Media>vKVM Mapped DVD. Then browse the ISO installation disk image stored locally and click Map Device.



- Select Power>Power cycle System (warm boot) in the KVM console.

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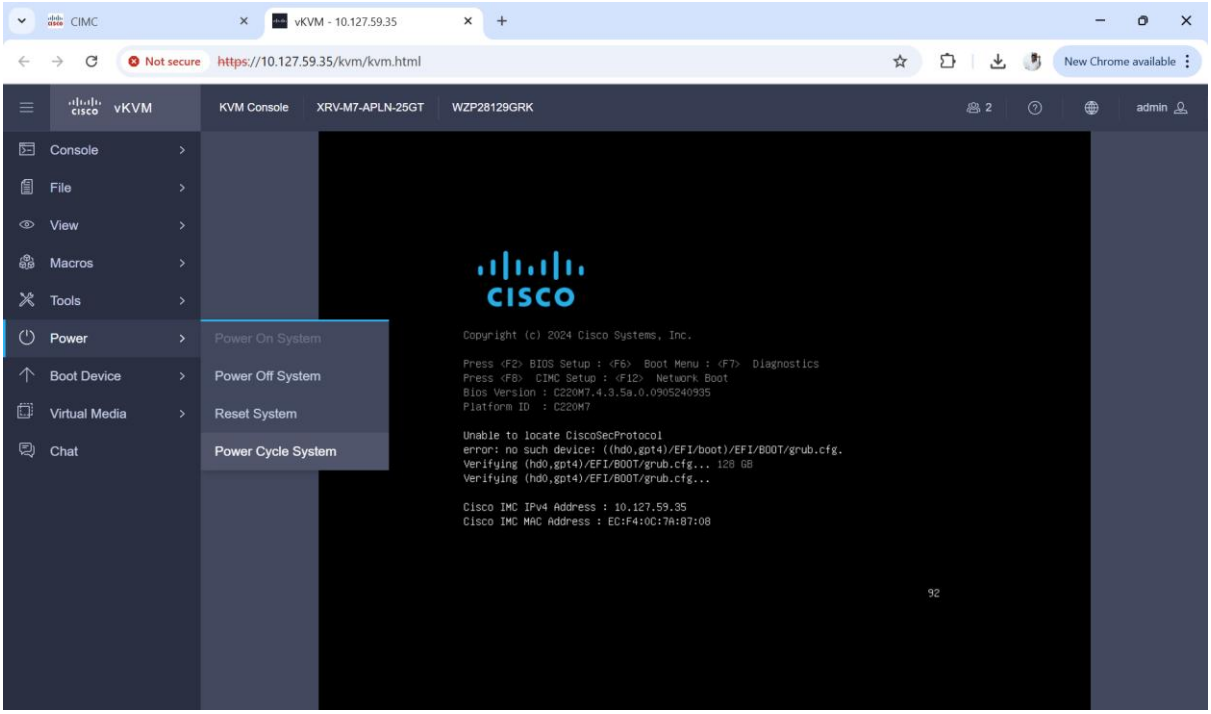
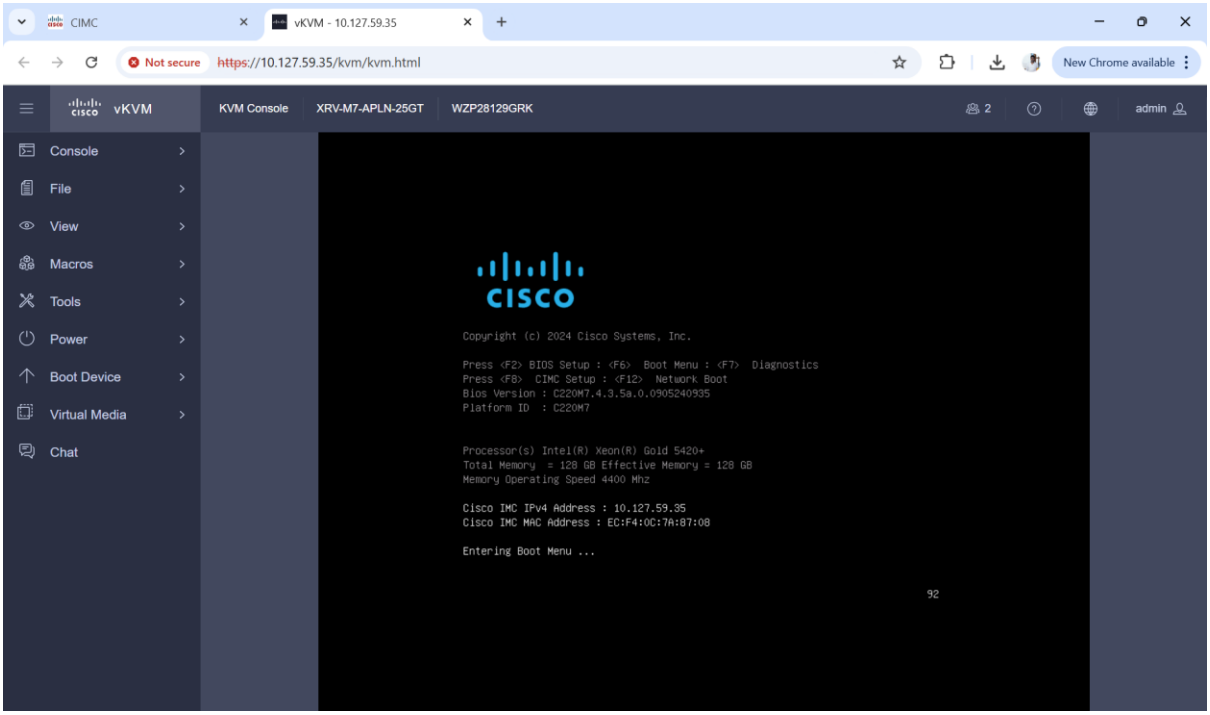


- Press F6 to enter the boot menu. Once you are in the boot menu, select the first DVD which is nothing but the same iso you selected earlier, mounted as a virtual disk. (Eg: Cisco vKVM Mapped vDVD1).

When the server reboots, it begins the installation process. After the installation process completes, system is upgraded and committed with your desired version/25.1.2 as mentioned in page 7.



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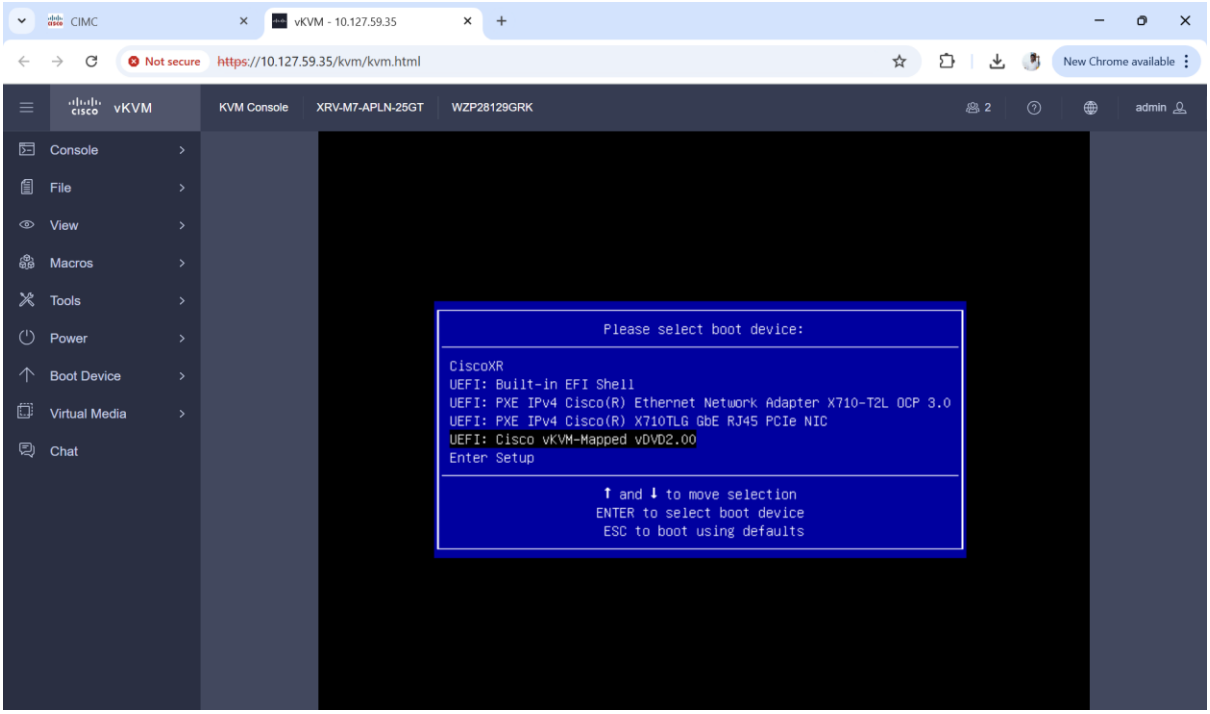


```
RP/0/RP0/CPU0:ios#
```

- 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 to desired image.

```
RP/0/RP0/CPU0:RR3-XRv-M7-APP#sh ver
Thu Jul  3 06:31:58.501 UTC
Cisco IOS XR Software, Version 25.1.2
Copyright (c) 2013-2025 by Cisco Systems, Inc.

Build Information:
 Built By     : swtools
 Built On     : Wed Jul  2 15:17:55 PDT 2025
 Built Host   : iox-ucs-048
 Workspace    : /auto/srcarchive12/prod/25.1.2/xrv9k/ws
 Version      : 25.1.2
 Location     : /opt/cisco/XR/packages/
 Label        : 25.1.2

cisco IOS-XRv 9000 () processor
System uptime is 21 minutes
```

- Check to see if there were any failed startup configurations and use CLI "clear configuration inconsistency" to clear failed configuration to proceed.

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```
RP/0/RP0/CPU0:XRV9000#show configuration failed startup
```

- Add recommended SMUs for 25.1.2 if not already in initial tarball (optional)

```
RP/0/RP0/CPU0:XRV9000#install add source harddisk: <mandatory SMU tar file
for 25.1.2>
```

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

```
RP/0/RP0/CPU0:XRV9000#install activate id <add id of previous step>
noprompt synchronous
```

- After system comes up from reload, execute 'install commit'

- Please check below cli commands to make sure your system is upgraded and committed with your desired version/25.1.2

  "show install committed summary"

  "show install activate summary"

  "show install active summary"

  "show logging"

  " show install request"

  .

Classic Method:

For M7 Appliance/:

All System Upgrade related install operations should be done in the XR VM plane. Only OE to OE images upgrade/downgrade is supported in classic method. (From 24.4.1 and above.)

Note:- 24.4.1 only supports fresh bake. 25.1.2 support fresh bake as well as classic install add method for upgrade/downgrade to other supported paths (post 24.4.1) .

- Download fullk9-R-XRV9000-2512.tar from CCO.

- Untar the fullk9-R-XRV9000-2512.tar. Copy the mini.iso + rpms files to harddisk:
- Copy the 25.1.2 iso image / tar file along with the rpm packages to the router harddisk and verify that files are copied successfully

```
RP/0/RP0/CPU0:XRV9000#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 xrv9k-mini-x-25.1.2.iso
```


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- Perform ‘install add’ of 2512 tar file / iso image and rpm packages:

```
RP/0/RP0/CPU0:XRV9000#install add source harddisk:/ xrv9k-mini-x-25.1.2.iso
+ Required rpms
```

OR

```
RP/0/RP0/CPU0:XRV9000#install add source tftp://auto/../ xrv9k-mini-x-25.1.2.iso
+ required rpm pkgs
```

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

```
Install operation 1 finished successfully
```

- Activate all the packages

```
RP/0/RP0/CPU0:XRV9000#install activate id 1 noprompt synchronous
```

- Router will reload at the end of activation operation for new packages to take effect.
- Verify that all the packages are installed correctly in XR and SysAdmin

```
RP/0/RP0/CPU0:XRV9000#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:XRV9000#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 to desired image.

```
RP/0/RP0/CPU0:RR3-XRv-M7-APP#sh ver
Thu Jul  3 06:31:58.501 UTC
Cisco IOS XR Software, Version 25.1.2
Copyright (c) 2013-2025 by Cisco Systems, Inc.

Build Information:
 Built By     : swtools
 Built On     : Wed Jul  2 15:17:55 PDT 2025
 Built Host   : iox-ucs-048
 Workspace    : /auto/srcarchive12/prod/25.1.2/xrv9k/ws
 Version      : 25.1.2
 Location     : /opt/cisco/XR/packages/
 Label        : 25.1.2

cisco IOS-XRv 9000 () processor
System uptime is 21 minutes
```

- Check to see if there were any failed startup configurations and use CLI "clear configuration inconsistency" to clear failed configuration to proceed.

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```
RP/0/RP0/CPU0:XRV9000#show configuration failed startup
```

- Add recommended SMUs for 25.1.2 if not already in initial tarball (optional)

```
RP/0/RP0/CPU0:XRV9000#install add source harddisk: <mandatory SMU tar file
for 25.1.2>
```

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

```
RP/0/RP0/CPU0:XRV9000#install activate id <add id of previous step>
noprompt synchronous
```

- After system comes up from reload, execute 'install commit'

- Please check below cli commands to make sure your system is upgraded and committed with your desired version/25.1.2

  "show install committed summary"

  "show install activate summary"

  "show install active summary"

  "show logging"

  " show install request"

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:XRV9000#install remove inactive all
```

- Verify/fix configuration file system (mandatory):

```
RP/0/RP0/CPU0:XRV9000#cfs check
```

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

OSPF

```
RP/0/RP0/CPU0:XRV9000# (config-ospf)# no max-metric router-lsa
```

ISIS

```
RP/0/RP0/CPU0:XRV9000# (config-isis)# no set-overload-bit
```


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Software Downgrade:

Classic Method

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

- Download 24.4.1 mini-ISO and packages tar and SMUs from CCO.
  Copy iso image to tftp / scp / ftp server. Verify the contents of the tar file/iso image"

- Copy the 24.4.1 iso image/tar file to the router harddisk and verify that file is copied successfully

```
RP/0/RP0/CPU0:XRV9000#scp  root@1.2.3.4://image/CCO/ xrv9k-mini-x-24.4.1.iso

RP/0/RP0/CPU0:XRV9000#scp  root@1.2.3.4://image/CCO/ rpm.tar
```

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

- Perform 'install add' of 2441 iso image / tar file:

```
RP/0/RP0/CPU0:XRV9000#install add source harddisk:/ xrv9k-mini-x-24.4.1.iso + Required Rpm tar

OR

RP/0/RP0/CPU0:XRV9000#install add source tftp://auto/../ xrv9k-mini-x-24.4.1.iso + required rpm pkgs
```

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

```
Install operation 9 finished successfully
```

- Activate all the packages

```
RP/0/RP0/CPU0:XRV9000#install activate id 9 noprompt synchronous
```

- Router will reload at the end of activation operation for new packages to take effect.
- Verify that all the packages are installed correctly in XR and SysAdmin

```
RP/0/RP0/CPU0:XRV9000#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:XRV9000#install commit
```


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- 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 to desired image.

```
RP/0/RP0/CPU0:XRV9000#show version
```

- Check to see if there were any failed startup configurations and use CLI "clear configuration inconsistency" to clear failed configuration to proceed.

```
RP/0/RP0/CPU0:XRV9000#show configuration failed startup
```

- Add recommended SMUs for 24.4.1 if not already in initial tarball (optional)

```
RP/0/RP0/CPU0:XRV9000#install add source harddisk: <mandatory SMU
tar file for 24.4.1>
```

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

RP/0/RP0/CPU0:XRV9000#install activate id <add id of previous step> `noprompt synchronous`

- After system comes up from reload, execute 'install commit'

- Please check "show install committed summary" to make sure your system is downgraded and committed with your desired version/24.4.1

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:XRV9000#install remove inactive all
```

- Verify/fix configuration file system (mandatory):

```
RP/0/RP0/CPU0:XRV9000#cfs check
```

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

OSPF

```
RP/0/RP0/CPU0:XRV9000# (config-ospf)# no max-metric router-lsa
```

ISIS

```
RP/0/RP0/CPU0:XRV9000# (config-isis)# no set-overload-bit
```


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GISO Upgrade:

For GISO, please refer to the chapter "Customize Installation using Golden ISO" in "System Setup and Software Installation Guide for XRv9k. Please refer to below link.

https://www.cisco.com/c/en/us/td/docs/routers/virtual-routers/configuration/guide/b-xrv9k-cg/m-golden-iso-xrv9k.html

Caveats

No Caveats.

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