



# Cisco XRv 9000 Upgrade Guide

## Cisco IOS XR Software

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## Preface

The system upgrade and package installation processes are executed using install commands on XRv9k. The processes involve adding and activating the iso images (.iso), feature packages (.rpm), and software maintenance upgrade files (.smu) on XRv9k. These files are accessed from a network server and then activated on XRv9k. If the installed package or SMU causes any issue, it can be uninstalled.

The topics covered in document are:

- [Upgrading the System](#)
- [Upgrading Features](#)
- [Installing Packages](#)
- [Uninstalling Packages](#)
- [Version Info](#)

## Upgrading the System

Upgrading the system is the process of installing a new version of the Cisco IOS XR operating system on XRv9k. You can install the new version in order to keep features up to date. The system upgrade operation is performed from the XR mode.

During system upgrade, the operating systems that run both on the XR and the System Admin get upgraded. System upgrade is done by installing a new ISO image. The file name for this is *xrv9k-fullk9-x.iso*. Install this ISO image using install commands. For more information about the install process, see [\*Installing Packages\*](#).

## Upgrading Features

Upgrading features is the process of deploying new features and software patches on the XRv9K. Feature upgrade is done by installing package files, termed simply, packages. Software patch installation is done by installing Software Maintenance Upgrade (SMU) files. Installing a package on the XRv9K installs specific features that are part of that package. Cisco IOS XR software is divided into various software packages; this enables you to select the features to run on your system. XRv9k by default comes only as a fullk9 ISO, so all feature packages are installed today. The only optional package is Lawful Intercept.

The naming convention of the package is

<platform>-<pkg>-<pkg version>-<releaseversion>.<architecture>.rpm

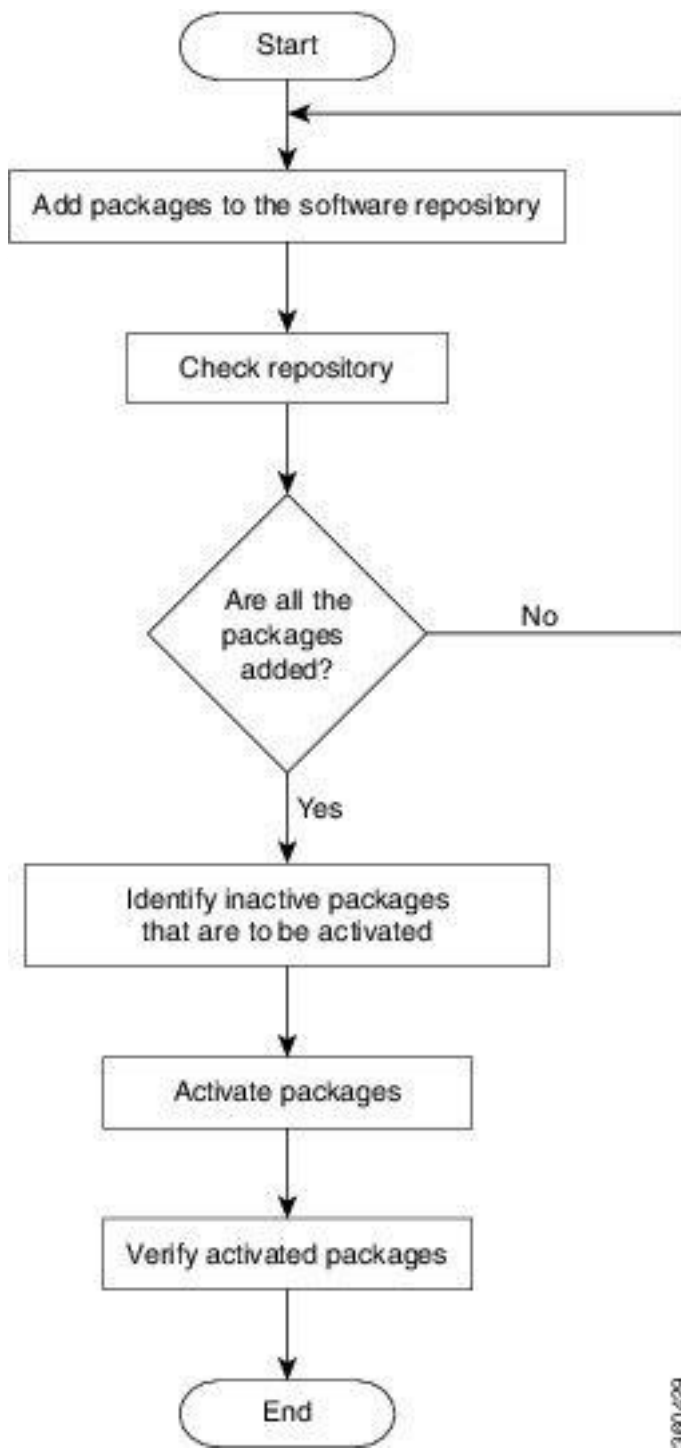
For example: [\*xrv9k-li-x-1.1.0.0-r614.x86\\_64.rpm\*](#)

## Installing Packages

Complete this task to upgrade the system or install a patch. The system upgrade is done using an ISO image file, while the patch installation is done using packages and SMUs. This task is also used to install *.tar* files. The *.tar* file contains multiple packages and SMUs that are merged into a single file. A single *.tar* file can contain up to 64 individual files. The packaging format defines one RPM per component, without dependency on the card type.

**NOTE:** Depending on whether you are installing a System Admin package or a XR package, execute the install commands in the System Admin EXEC mode or XR EXEC mode respectively. All the install commands are applicable in both these modes.

The workflow for installing a package is shown in this flowchart:



## Before you Begin

- Configure and connect to the management port. The installable file is accessed through the management port.

- Copy the package to be installed either on the XRV9K hard disk or on a network server to which the XRV9K has access.

## Procedure

<b>Step 1</b>	<p>Execute one of these:</p> <ul style="list-style-type: none"> <li>• <code>install add source &lt;tftp transfer protocol&gt;/package_path/ filename1 filename2 ...</code></li> <li>• <code>install add source &lt;ftp or sftp transfer protocol&gt;://user@server:/package_path/ filename1 filename2 ...</code></li> <li>• <code>install add source harddisk:/ filename1 filename2 ...</code></li> </ul> <p><b>Example:</b></p> <pre>RP/0/RP0/CPU0:ios#install add source harddisk:/ xrv9k-fullk9-x.vrr-6.3.1.38I.iso Thu Sep 14 18:12:22.103 UTC Sep 14 18:12:23 Install operation 1 started by root:   install add source harddisk:/ xrv9k-fullk9-x.vrr-6.3.1.38I.iso Sep 14 18:12:24 Install operation will continue in the background RP/0/RP0/CPU0:ios#RP/0/RP0/CPU0:Sep 14 18:12:40.859 : sdr_instmgr[1171]: %INSTALL-INSTMGR-2-OPERATION_SUCCESS : Install operation 1 finished successfully Sep 14 18:12:42 Install operation 1 finished successfully</pre> <p>The software files are unpacked from the package and added to the software repository. This operation might take time depending on the size of the files being added. The operation is performed in asynchronous mode. The <code>install add</code> command runs in the background, and the EXEC prompt is returned as soon as possible.</p>
<b>Step 2</b>	<p><code>show install request</code></p> <p><b>Example:</b></p> <pre>RP/0/RP0/CPU0:ios#show install request</pre> <p>(Optional) Displays the operation ID of the add operation and its status. The operation ID can be later used to execute the <code>activate</code> command.</p>
<b>Step 3</b>	<p><code>show install repository</code></p> <p><b>Example:</b></p> <pre>RP/0/RP0/CPU0:ios#show install repository Fri Sep 15 14:19:30.724 UTC 3 package(s) in XR repository:   xrv9k-fullk9-x-6.3.1.38I</pre>

	<pre> xrv9k-xr-6.3.1.38I xrv9k-xr-6.1.4 </pre> <p>Displays packages that are added to the repository. Packages are displayed only after the install addoperation is complete.</p>
<b>Step 4</b>	<p>show install inactive</p> <p><b>Example:</b> RP/0/RP0/CPU0:ios#show install inactive</p> <p>Displays inactive packages that are present in the repository. Only inactive packages can be activated.</p>
<b>Step 5</b>	<p>Execute one of these:</p> <ul style="list-style-type: none"> <li>• <code>install activate package_name</code></li> <li>• <code>install activate id operation_id</code></li> </ul> <p><b>Example:</b>  RP/0/RP0/CPU0:ios#install activate xrv9k-fullk9-x-6.1.2 or  RP/0/RP0/CPU0:ios#install activate id 1  Thu Sep 14 18:19:51.273 UTC  Sep 14 18:19:52 Install operation 2 started by root:  install activate id 1  Sep 14 18:19:52 Package list:  Sep 14 18:19:52 xrv9k-fullk9-x-6.3.1.38I  This install operation will reload the sdr, continue?  [yes/no]:[yes] yes  Sep 14 18:20:13 Install operation will continue in the background  RP/0/RP0/CPU0:Sep 14 18:23:12.685 : sdr_instmgr[1171]: %INSTALL-INSTMGR-2-  OPERATION_SUCCESS : Install operation 2 finished successfully  Sep 14 18:23:13 Install operation 2 finished successfully  RP/0/RP0/CPU0:Sep 14 18:23:14.006 : sdr_instmgr[1171]: %INSTALL-INSTMGR-2-  SYSTEM_RELOAD_INFO : The whole system will be reloaded to complete install  operation 2</p> <p>Preparing system for backup. This may take a few minutes especially for large configurations.  Status report: node0_RP0_CPU0: START TO BACKUP  Status report: node0_RP0_CPU0: BACKUP HAS COMPLETED SUCCESSFULLY  [Done]  [18:24:06.784] Sending KILL signal to processmgr..</p> <p><b>[System RELOADS]</b></p> <p>The package configurations are made active on the XRV9K. As a result, new features and software fixes take effect. This operation is performed in asynchronous mode. The install activate command runs in the background, and the EXEC prompt is returned.</p>



	<p><b>NOTE:</b></p> <p>After an RPM of a higher version is activated, and if it is required to activate an RPM of a lower version, use the force option. For example: Using traditional method, add the RPM with lower version to the repository and then force the activation:</p> <pre>install add source repository xrv9k-fullk9-x-6.1.2 install activate xrv9k-fullk9-x-6.1.2 force</pre> <p>or</p> <p>Using the install update command:</p> <pre>install update source repository xrv9k-li-x-1.1.0.0-r614.x86_64.rpm</pre> <p>If you use the operation ID, all packages that were added in the specified operation are activated together. For example, if 5 packages are added in operation 8, by executing <code>install activate id 8</code>, all 5 packages are activated together. You do not have to activate the packages individually.</p>
<b>Step 6</b>	<p><code>show install active</code></p> <p><b>Example:</b></p> <pre>RP/0/RP0/CPU0:ios#show install active Fri Sep 15 16:25:43.898 UTC Node 0/RP0/CPU0 [RP]   Boot Partition: xr_lv4   Active Packages: 1     xrv9k-xr-6.3.1.38I version=6.3.1.38I [Boot image]  Node 0/0/CPU0 [LC]   Boot Partition: xr_lcp_lv0   Active Packages: 1     xrv9k-xr-6.3.1.38I version=6.3.1.38I [Boot image]</pre> <p>Displays the packages that are active.</p>
<b>Step 7</b>	<p><code>install commit</code></p> <p><b>Example:</b></p> <pre>RP/0/RP0/CPU0:ios#install commit Thu Sep 14 18:31:42.948 UTC Sep 14 18:31:44 Install operation 3 started by root:   install commit Sep 14 18:31:45 Install operation will continue in the background RP/0/RP0/CPU0:ios#RP/0/RP0/CPU0:Sep 14 18:31:50.436 : sdr_instmgr[1193]: %INSTALL-INSTMGR-2-OPERATION_SUCCESS : Install operation 3 finished successfully  RP/0/RP0/CPU0:ios#Sep 14 18:31:53 Install operation 3 finished successfully</pre>

	Commits the newly active software.
--	------------------------------------

### Installing Packages: Related Commands

Related Commands	Purpose
show install log	Displays the log information for the install process; this can be used for troubleshooting in case of install
show install package	Displays the details of the packages that have been added to the repository. Use this command to identify individual components of a package.

### What to Do Next

- Verify the installation using the install verify packages command.
- Uninstall the packages or SMUs if their installation causes any issues on the XRV9K.

### NOTE:

ISO images cannot be uninstalled. However, you can perform a system downgrade by installing an older ISO version.

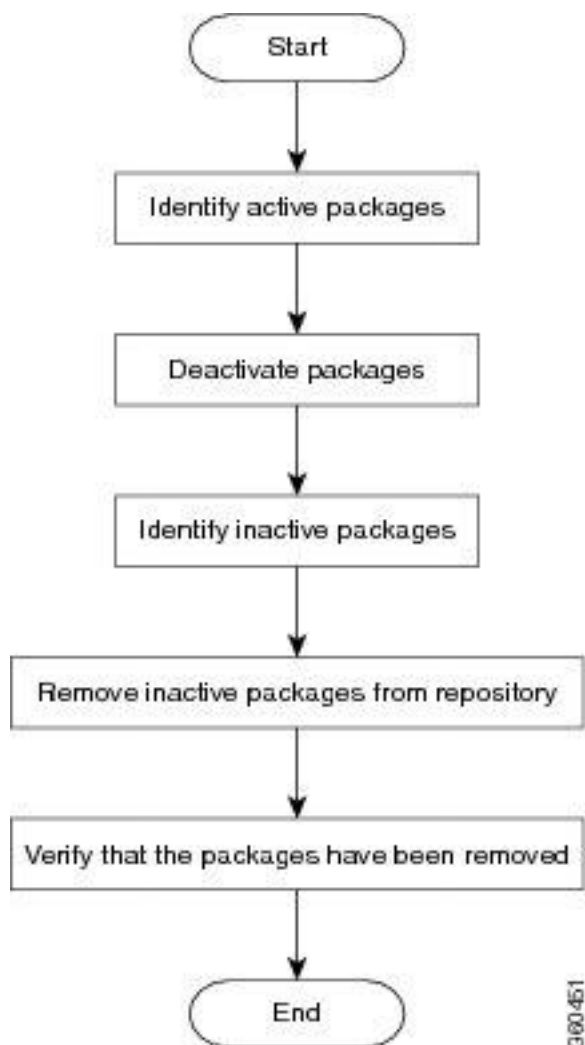
## Uninstalling Packages

Complete this task to uninstall a package. All XRV9K functionalities that are part of the uninstalled package are deactivated. Packages that are added in the XR mode cannot be uninstalled from the System Admin mode, and vice versa.

### NOTE:

Installed ISO images cannot be uninstalled. Also, kernel SMUs that install third party SMU on host, XR mode and System Admin mode, cannot be uninstalled. However, subsequent installation of ISO image or kernel SMU overwrites the existing installation.

The following diagram depicts the uninstall workflow:



<b>Step 1</b>	<p>show install active</p> <p><b>Example:</b></p> <pre>RP/0/RP0/CPU0:ios#show install active</pre> <p>Displays active packages. Only active packages can be deactivated.</p>
<b>Step 2</b>	<p>Execute one of these:</p> <ul style="list-style-type: none"><li>• install deactivate package_name</li><li>• install deactivate id operation_id</li></ul> <p><b>Example:</b></p> <pre>RP/0/RP0/CPU0:ios#install deactivate id 1</pre>

	<p>All features and software patches associated with the package are deactivated. You can specify multiple package names and deactivate them simultaneously.</p> <p>If you use the operation ID, all packages that were added in the specified operation are deactivated together. You do not have to deactivate the packages individually.</p>
<b>Step 3</b>	<p>show install inactive</p> <p><b>Example:</b> RP/0/RP0/CPU0:ios#show install inactive</p> <p>The deactivated packages are now listed as inactive packages. Only inactive packages can be removed from the repository.</p>
<b>Step 4</b>	<p>install remove package_name</p> <p><b>Example:</b> RP/0/RP0/CPU0:ios#install remove xrv9k-li-1.1.0.0-r614</p> <p>The inactive packages are removed from the repository.</p> <p>Use the install remove command with the id operation-id keyword and argument to remove all packages that were added for the specified operation ID.</p>
<b>Step 5</b>	<p>show install repository</p> <p><b>Example:</b> RP/0/RP0/CPU0:ios#show install repository</p> <p>Displays packages available in the repository. The package that are removed are no longer displayed in the result.</p>

## Version Info

show version

**Example:**

```
RP/0/RP0/CPU0:ios#show version
Thu Sep 14 18:34:05.604 UTC
```

```
Cisco IOS XR Software, Version 6.3.1.38I
Copyright (c) 2013-2017 by Cisco Systems, Inc.
```

Build Information:

```
Built By      : svustipa
```

### Contents

```
Built On      : Mon Sep  4 22:45:24 PDT 2017
Build Host    : iox-ucs-028
Workspace     : /auto/iox-ucs-028-
san2/production/6.3.1.38I.SIT_IMAGE/xrv9k/workspace
Version       : 6.3.1.38I
Location      : /opt/cisco/XR/packages/
```

```
cisco IOS-XRv 9000 () processor
System uptime is 7 minutes
```

Shows the system version information.