

Cisco ASR 9000 Series Aggregation Services Router Release 7.0.1

Upgrade and Downgrade Procedure

Contents

- 1 Introduction..... 3
 - 1.1 Purpose, Audience and Scope..... 3
 - 1.2 Summary of Upgrade Steps 3
 - 1.3 Cisco Software Manager..... 4
 - 1.4 Mandatory SMUs 4
 - 1.5 Selection of Packages for Upgrade 5
- 2 Upgrade to IOS XR Release 7.0.1 6
 - 2.1 Upgrading IOS XR – EXR Images..... 6
- 3 Other Boot Options..... 8
- 4 FPD Upgrade..... 9
- 5 Downgrade from IOS XR Release 7.0.1 9
- 6 Caveats 10
- 7 CXR to EXR migration..... 10

1 Introduction

1.1 Purpose, Audience and Scope

The purpose of this document is to describe the upgrade and downgrade procedure for the Cisco ASR 9000 Series Aggregation Services Router, Release 7.0.1

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

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

1.2 Summary of Upgrade Steps

1. Add the image to the router using tftp,http,sftp. Via install add source
2. Activate the image via install activate
3. Release 7.0.1 introduces the following hardware's: No new hardware
4. Please refer the ddt's for the unsupported cards from release 6xx: **CSCuz35344**

1.3 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 Download page](#)

User Documentation: <http://www.cisco.com/en/US/docs/routers/asr9000/software/smu/csmuser.html>

1.4 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
R6.1.2	No	No
R6.1.3	*CSCvf01652	No
R6.1.4	*CSCvf01652	No
R6.2.2	*CSCvf01652	No
R6.2.25	*CSCvf01652	No
R6.5.2	No	No
R6.6.2	No	No
R6.5.3	No	No

*Applicable to eXR only.

1.5 Selection of Packages for Upgrade

As software features grow, so do file sizes. So in order to ease the downloading experience and TFTP size issues, Cisco is changing its package delivery system by providing multiple files of smaller sizes as shown below:

Table 1- New IOS-XR Packaging Format

#	File	Contents	Comment
1	asr9k-mini-x64-7.0.1.iso	64-bit mini.iso image only	Contains 64-bit mini.iso upgrade image only
2	ASR9K-x64-iosxr-px-7.0.1.tar	All 64-bit rpms. No mini.iso and k9sec rpm.	Contains all rpms except the mini.iso
3	ASR9K-x64-iosxr-px-k9-7.0.1.tar	All 64-bit rpms. No mini.iso.	Contains all rpms including k9sec except the mini.iso
4	asr9k-9000v-nV-x64-1.0.0.0-r662.x86_64.rpm	64-bit 9000v satellite rpm	Contains all rpms including k9sec except the mini.iso
5	asr9k-mini-x64-migrate_to_eXR.tar-7.0.1	64-bit migration consists of mini.iso	64-bit migration tar file. Refer "ASR9K-Migration-to-ios-xr-64-bit" documentation on CCO.

2 Upgrade to IOS XR Release 7.0.1

2.1 Upgrading IOS XR – EXR Images

NOTE:

1. Cisco recommends that you do a backup of the ASCII configuration to the harddisk: or off box location.
2. FPD AUTO-UPGRADE can be used while upgrading images from 6xx releases. Manual FPD upgrade requires additional reload of router for newer FPD images to take effect.

Configure FPD AUTO-UPGRADE in from ADMIN-VM in config mode.

```
RP/0/RP1/CPU0:PE2#admin
sysadmin-vm:0_RP0# config t
Entering configuration mode terminal
sysadmin-vm:0_RP0(config)# fpd auto-upgrade enable
sysadmin-vm:0_RP0(config)# commit
```

Following install operations must be performed in “xm” vm. The optional packages (mpls, mcast, mgbl etc.) that are being installed/upgraded must match the active packages, else the install will fail

1. Perform “install add <pkgs+smu’s or SP>” to copy the software from TFTP/SFTP/SCP/FTP server to the router.
This is a hitless operation and can be formed outside a maintenance window.
2. After **install add** operation is successful perform “**install prepare <install id generated during add operation>**”
3. After successful completion of install prepare operation, perform **install activate** command to activate prepared packages, at this point the router will **reboot**.
4. After the router has reloaded and sufficient checks have been done, then perform “**install commit**” operation. This will make the software (packages and smu’s) persistent across reloads

Example:

Install ADD Operation: (Can be done with individual packages or tar)

```
RP/0/RP1/CPU0:PE2#sh install log 11
Apr 27 01:40:02 Install operation 11 started by lab:
install add source tftp://202.153.144.26/auto/tftp-blr-users1/rthiruve asr9k-eigrp-x64-1.0.0.0-r701.x86_64.rpm asr9k-isis-x64-1.1.0.0-r701.x86_64.rpm asr9k-k9sec-x64-2.1.0.0-r701.x86_64.rpm asr9k-li-x64-1.1.0.0-r701.x86_64.rpm asr9k-m2m-x64-2.0.0.0-r701.x86_64.rpm asr9k-mcast-x64-2.0.0.0-r701.x86_64.rpm asr9k-mgbl-x64-2.0.0.0-r701.x86_64.rpm asr9k-mini-x64-7.0.1.iso asr9k-mpls-te-rsvp-x64-2.1.0.0-r701.x86_64.rpm asr9k-mpls-x64-2.0.0.0-r701.x86_64.rpm asr9k-optic-x64-1.0.0.0-r701.x86_64.rpm asr9k-ospf-x64-1.0.0.0-r701.x86_64.rpm asr9k-9000v-nV-x64-1.0.0.0-r701.x86_64.rpm asr9k-bng-x64-1.0.0.0-r701.x86_64.rpm
Apr 27 01:40:03 Action 1: install add action started
Apr 27 01:40:04 Install operation will continue in the background
Apr 27 02:19:15 Packages added:
Apr 27 02:19:15 asr9k-eigrp-x64-1.0.0.0-r701.x86_64
Apr 27 02:19:15 asr9k-isis-x64-1.1.0.0-r701.x86_64
Apr 27 02:19:15 asr9k-k9sec-x64-2.1.0.0-r701.x86_64
Apr 27 02:19:15 asr9k-li-x64-1.1.0.0-r701.x86_64
Apr 27 02:19:15 asr9k-m2m-x64-2.0.0.0-r701.x86_64
Apr 27 02:19:15 asr9k-mcast-x64-2.0.0.0-r701.x86_64
Apr 27 02:19:15 asr9k-mgbl-x64-2.0.0.0-r701.x86_64
Apr 27 02:19:15 asr9k-mini-x64-7.0.1
Apr 27 02:19:15 asr9k-mpls-te-rsvp-x64-2.1.0.0-r701.x86_64
Apr 27 02:19:15 asr9k-mpls-x64-2.0.0.0-r701.x86_64
```

```

Apr 27 02:19:15      asr9k-optic-x64-1.0.0.0-r701.x86_64
Apr 27 02:19:15      asr9k-ospf-x64-1.0.0.0-r701.x86_64
Apr 27 02:19:15      asr9k-9000v-nV-x64-1.0.0.0-r701.x86_64
Apr 27 02:19:15      asr9k-bng-x64-1.0.0.0-r701.x86_64
Apr 27 02:19:15 Action 1: install add action completed successfully
Apr 27 02:19:16 Install operation 11 finished successfully
Apr 27 02:19:16 Ending operation 11

```

Install PREPARE Operation:

```

RP/0/RP1/CPU0:PE2#install prepare id 11
Apr 27 02:20:21 Install operation 12 started by lab:
      install prepare id 11
Apr 27 02:20:21 Package list:
Apr 27 02:20:21      asr9k-eigrp-x64-1.0.0.0-r701.x86_64
Apr 27 02:20:21      asr9k-isis-x64-1.1.0.0-r701.x86_64
Apr 27 02:20:21      asr9k-k9sec-x64-2.1.0.0-r701.x86_64
Apr 27 02:20:21      asr9k-li-x64-1.1.0.0-r701.x86_64
Apr 27 02:20:21      asr9k-m2m-x64-2.0.0.0-r701.x86_64
Apr 27 02:20:21      asr9k-mcast-x64-2.0.0.0-r701.x86_64
Apr 27 02:20:21      asr9k-mgbl-x64-2.0.0.0-r701.x86_64
Apr 27 02:20:21      asr9k-mini-x64-7.0.1
Apr 27 02:20:21      asr9k-mpls-te-rsvp-x64-2.1.0.0-r701.x86_64
Apr 27 02:20:21      asr9k-mpls-x64-2.0.0.0-r701.x86_64
Apr 27 02:20:21      asr9k-optic-x64-1.0.0.0-r701.x86_64
Apr 27 02:20:21      asr9k-ospf-x64-1.0.0.0-r701.x86_64
Apr 27 02:20:21      asr9k-9000v-nV-x64-1.0.0.0-r701.x86_64
Apr 27 02:20:21      asr9k-bng-x64-1.0.0.0-r701.x86_64
Apr 27 02:21:45 Install operation will continue in the background

```

Install ACTIVATE Operation:

```

RP/0/RP1/CPU0:PE2#install activate
Apr 27 03:01:17 Install operation 13 started by lab:
      install activate
Apr 27 03:01:19 This install operation will reload the system, continue?
      [yes/no]:[yes] default yes
Apr 27 03:05:19 Install operation will continue in the background

```

Install Commit Operation:

```

RP/0/RP1/CPU0:PE2#install commit
Apr 27 03:20:11 Install operation 14 started by lab:
      install commit
Apr 27 03:20:12 Install operation will continue in the background
Apr 27 03:21:16 Install operation 14 finished successfully
Apr 27 03:21:16 Ending operation 14

```

3. When the upgrade is completed and “**install commit**” is performed an “**install remove inactive**” can be used to clear old images from the disk. This is a hitless operation.
4. If the install operation fails collect the relevant show tech install output

3 Other Boot Options

Please refer Chapter “Bring-up the Router” in

[System Setup and Software Installation Guide for Cisco ASR 9000 Series Routers, IOS XR Release 7.0.X](#)

4 FPD Upgrade

Fpd auto-upgrade feature if configured on router should take care of fpd upgrade. Manual fpd upgrade can be performed after R7.0.1 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/RP1/CPU0:router#upgrade hw-module location all fpd all

Note: Except CBC update, router reload is required after running the “upgrade hw-module fpd all location all” command, to make the changes in effect. No reload is required after running the upgrade **hw-module fpd cbc location all** command. The new CBC firmware will be active. The software automatically resets the local CAN Bus. FPD pie is mandatory for the above steps.

Auto-FPD requirements:

1. CSCUj69940: Auto-FPD upgrade will not work if the source release does not have FPD Package installed and the user has configured auto-fpd prior to upgrade.
2. CSCul00317: Auto-FPD upgrade will not work if FPD being upgraded is 2 releases old or if no new FPD changes are available. Workaround is to perform a manual FPD upgrade.
3. CSCut97560 : FPD upgrade (both auto and manual) fails if there is not enough space on harddisk: Workaround is to clear some unwanted files in the harddisk before doing the fpd upgrade

5 Downgrade from IOS XR Release 7.0.1

Please do refer the caveats . we can downgrade the 701 to 6.1.x as normal procedure.

|

6 Caveats

The caveats listed below are summaries only. Please view each release note enclosure (RNE) for complete details (Including known workarounds and/or actions to take).

1. CSCvp19524: 701- 614 downgrade. Remove AAA users configs from SYSADMIN/XR VMs and downgrade
2. CSCvp30672: 701 – 652 downgrade Device Discovery fails for Arbiter on Tornado
3. CSCug38404: ROMMON downgrading isn't allowed on certain line cards with a 2.00 ROMMON Version. The downgrade operation will fail.
4. 7.0.1<---->6.2.3 - **INSTALL ISSUE** - In 62X.RPMS ARE NOT SIGNED and RPMS are Signed from 632 onwards "nooptim" option can be used in the INSTALL ADD CLI and can proceed further.

7 CXR to EXR migration.

Please do refer to below link.

https://www.cisco.com/c/en/us/td/docs/routers/asr9000/migration/guide/b-migration-to-ios-xr-64-bit/b-migration-to-ios-xr-64-bit_chapter_00.html