

# MGX 8220 Upgrade and Downgrade Techniques

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## Introduction

This document describes the Cisco–recommended process for successful Cisco MGX 8220 edge concentrator bootcode and firmware upgrades and downgrades. AXIS is the legacy product name for the Cisco MGX 8220 edge concentrator.

These upgrade and downgrade techniques (described in MGX 8220 Upgrade and Downgrade Matrices, Concepts and Definitions) for the AXIS Shelf Controller (ASC) and service module (SM) are provided:

- Graceful Upgrades
- Ungraceful Upgrades
- Downgrades

Refer to Concepts and Definitions for additional information.

You must be a registered user to see detailed information in firmware release notes.

Use this document as an aid to conduct successful firmware upgrades. This document is not a substitute for proper planning with your Cisco sales engineer, systems engineer, or account manager.

**Note:** Refer to Upgrading MGX 8220 Firmware 2.1.18/16 to 4.0.03 for MGX 8220 upgrades from firmware version 2.1.16 or 2.1.18 to 4.0.03.



**Warning:** Use of the procedures in this document assumes a working knowledge of the MGX 8220 edge concentrator. Read both documents completely before you proceed with a firmware upgrade.

## Prerequisites

### Requirements

Cisco recommends that you have knowledge of these topics:

- MGX 8220 edge concentrator

### Components Used

The information in this document is based on these software and hardware versions:

MGX 8220 upgrades to firmware version 5.0.x are supported only for versions:

- 4.0.x
- 4.1.x
- 5.0.x

First upgrade devices to the latest generally available firmware version of 4.0.x or 4.1.x for upgrades from version 2.x or 3.x. Then upgrade to version 5.0.x. Special considerations apply when you upgrade:

1. From versions 2.x and 3.x
2. Inverse multiplexing for ATM (IMATM) trunk module and ATM User–Network Interface (UNI) SMs (AUSMs) 8–port SMs from version 4.0.x and 4.1.x to version 5.0.x

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

### Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

## Procedures

### Procedure 1: Ungraceful Upgrade for 1 ASC Card Set for Versions 2.x to 2.y; 2.x to 3.y; 3.x to 3.y

This procedure applies to firmware versions:

- 2.x to 2.y
- 2.x to 3.y
- 3.x to 3.y

1. Save the current ASC configuration.

Perform this step for the ASC before you upgrade the firmware.

2. Save the current SM configuration for each primary and stand-alone SM.

Perform this step for the SM before you upgrade the firmware.

3. Issue the **dspadrxlat** command and note the value of the *ConnNumOfValidEntries* parameter, which indicates the number of connections.

Issue this command again at the end of the procedure to ensure that the number of connections has not changed.

4. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the configuration of the shelf during the upgrade. Examine the number of lines, ports, and channels before the upgrade. Examine the same configuration parameters after the upgrade to establish that a configuration has been retained.

5. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a Trivial File Transfer Protocol (TFTP).

This step downloads the new ASC bootcode into the ASC.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
6. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_ACTIVE.FW** command to perform a TFTP.

This step downloads the new ASC firmware into the ASC.

7. Compare the file size of the firmware to verify a successful download to the ASC disk.
8. Issue the **dspfwrevs** command to verify the correct firmware revision.
9. Set the start and end addresses in Flash memory where the bootcode file is written for all SMs.

- a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbfc00000 and end at 0xbfc40000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbfc00000  
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbfc40000
```

- b. Issue the **put <SM\_BT\_file> AXIS\_SM\_1\_slot#.BOOT** command to perform a TFTP and replace *slot#* with the number of the SM slot.
  - c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
  - d. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
10. Set the start and end addresses in Flash memory where the firmware file is written for all SMs.
    - a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbfc40000 and end at 0xbfd00000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbfc40000  
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbfd00000
```

- b. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_slot#.FW** command to perform a TFTP and replace *slot#* with the number of the SM slot.
  - c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
11. Issue the **resetsys** command to reset all cards on the shelf.

12. Issue the **dspadrxlat** command to ensure that the number of connections has not changed.
13. Issue the **dsptotals** command for all primary and stand-alone SMs.

This step examines the number of lines, ports, and channels after the upgrade. Compare the values to those before the download. The command also can help establish whether the configuration remains the same.

14. Restore the ASC and SM configurations if necessary.

## Procedure 2: Downgrade for 1 ASC Card Set for Versions 2.y to 2.x; 3.y to 2.x; 3.y to 3.x

This procedure applies to firmware versions:

- 2.y to 2.x
- 3.y to 2.x
- 3.y to 3.x

1. Check compatibility.
2. Save the current ASC configuration.

Perform this step for the ASC before you downgrade the firmware.

3. Save the current SM configuration for each primary and stand-alone SM.

Perform this step before you downgrade the firmware.

4. Issue the **dspadrxlat** command and note the value of the *ConnNumOfValidEntries* parameter, which indicates the number of connections.

Issue the command again at the end of the procedure to ensure that the number of connections has not changed.

5. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the configuration of the shelf during the downgrade. Examine the number of lines, ports, and channels before the downgrade. Examine the same configuration parameters after the downgrade to establish whether the configuration has been restored properly.

6. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.

This step downloads the desired bootcode into the ASC.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
- b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
7. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_ACTIVE.FW** command to perform a TFTP to download the desired ASC firmware into the ASC.
8. Check the file size of the downloaded firmware to see whether the firmware was downloaded successfully to the ASC disk.
9. Issue the **dspfwrevs** command to verify the correct firmware revision.
10. Set the start and end addresses in Flash memory where the bootcode file is written for all SMs.

- a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbfc00000 and end at 0xbfc40000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbfc00000  
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbfc40000
```

- b. Issue the **put** <SM\_BT\_file> **AXIS\_SM\_1\_slot#.BOOT** command to perform a TFTP.

Replace *slot#* with the number of the SM slot. This step downloads the desired bootcode for the SM.

- c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
  - d. Issue the **version** command to display the version of the bootcode stored in Flash memory.
11. Set the start and end addresses in Flash memory where the firmware file is written for all SMs.

- a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the firmware file at 0xbfc40000 and end at 0xbfd00000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbfc40000
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbfd00000
```

- b. Issue the **put** <SM\_FW\_file> **AXIS\_SM\_1\_slot#.FW** command to perform a TFTP.

Replace *slot#* with the number of the SM slot. This step downloads the desired firmware into the SM.

- c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
12. Issue the **clrallcnf** command to reset all cards on the shelf.
  13. Set the battery–backup RAM (BRAM) revision.
  14. Restore the ASC and SM configurations.
  15. Issue the **dspadrxlat** command to ensure that the number of connections is correct.
  16. Issue the **dsptotals** command for all SMs.

This step examines the number of lines, ports, and channels after the downgrade. Compare the values to those before the download to establish whether the configuration has remained the same.

### Procedure 3: Ungraceful Upgrade for 2 ASC Card Set for Versions 2.x to 2.y; 2.x to 3.y; 3.x to 3.y

**Note:** An MGX 8220 shelf that runs version 2.x cannot be upgraded to 3.x gracefully. The upgrade process is ungraceful even if the shelf has redundancy with a two ASC card set. Complete these steps to ungracefully upgrade these releases:

This procedure applies to firmware versions:

- 2.x to 2.y
- 2.x to 3.x
- 3.x to 3.y

1. Save the current ASC configuration.

Perform this step for the ASC before you upgrade the firmware.

2. Save the current SM configuration for each primary and stand–alone SM.

Perform this step for the SM before you upgrade the firmware.

3. Issue the **dspadrxlat** command, and note the value of the *ConnNumOfValidEntries* parameter, which indicates the number of connections.

Issue the command again at the end of the procedure to ensure that the number of connections has not changed.

4. Issue the **dsptotals** command for all primary and stand–alone SMs.

Do not change the configuration of the shelf during the upgrade. Examine the number of lines, ports, and channels before the upgrade. Examine the same configuration parameters after the upgrade to establish whether the configuration has been retained.

5. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.

This step downloads the new bootcode for the ASC.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
  - c. Issue the **switchcc** command to switch to the other ASC.
  - d. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP to download the new bootcode into the second ASC.
  - e. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
  - f. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
6. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_ACTIVE.FW** command to perform a TFTP.

This step downloads the new firmware for the active ASC.

7. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
8. Issue the **dspfwrevs** command to verify the correct firmware revision.
9. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_STANDBY.FW** command to perform a TFTP.

This step downloads the new firmware for the standby ASC.

10. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
11. Issue the **dspfwrevs** command to verify the correct firmware revision.
12. Set the start and end addresses in Flash memory where the bootcode file is written for all SMs.
  - a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbfc00000 and end at 0xbfc40000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbfc00000  
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbfc40000
```

- b. Issue the **put <SM\_BT\_file> AXIS\_SM\_1\_slot#.BOOT** command to perform a TFTP.

Replace *slot#* with the number of the SM slot. This step downloads the new bootcode for the SM.

- c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
  - d. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
13. Set the start and end addresses in Flash memory where the firmware file is written for all SMs.
    - a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbfc40000 and end at 0xbfd00000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbfc40000  
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbfd00000
```

- b. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_slot#.FW** command to perform a TFTP.

Replace *slot#* with the number of the SM slot. This step downloads the desired firmware into the SM.

- c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
14. Issue the **resetsys** command to reset all cards on the shelf.
15. Issue the **dspadrxlat** command to ensure that the number of connections is correct.
16. Issue the **dsptotals** command for all primary and stand-alone SMs.

Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to establish that the configuration has remained the same.

17. Restore the ASC and SM configurations if necessary.

## Procedure 4: Downgrade for 2 ASC Card Set for Versions 2.y to 2.x; 3.y to 2.x; 3.y to 3.x

This procedure applies to firmware versions:

- 2.y to 2.x
- 3.y to 2.x
- 3.y to 3.x

1. Check compatibility.
2. Save the current ASC configuration.

Perform this step for the ASC before you downgrade the firmware.

3. Save the current SM configuration for each primary and stand-alone SM.

Perform this step for the SM before you downgrade the firmware.

4. Issue the **dspadrxlat** command and note the value of the *ConnNumOfValidEntries* parameter.

This indicates the number of connections. Issue the command at the end of the procedure to ensure that the number of connections has not changed.

5. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the shelf configuration during the downgrade. Examine the number of lines, ports, and channels before the downgrade. Examine the same configuration parameters after the downgrade to establish whether the configuration has remained the same.

6. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.

This step downloads the new ASC bootcode into the ASC.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
- b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
- c. Issue the **switchcc** command to switch to the other ASC.
- d. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.
- e. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
- f. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
7. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_ACTIVE.FW** command to perform a TFTP.

This step downloads the desired firmware for the active ASC.

8. Check the file size of the downloaded firmware and check whether the firmware has been downloaded successfully to the ASC disk..
9. Issue the **dspfwrevs** command to verify the correct firmware revision.
10. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_STANDBY.FW** command to perform a TFTP.

This step downloads the desired firmware for the standby ASC.

11. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
12. Issue the **dspfwrevs** command to verify the correct firmware revision.
13. Set the start and end addresses in Flash memory where the bootcode file is written for all SMs.
  - a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbfc00000 and end at 0xbfc40000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbfc00000
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbfc40000
```

- b. Issue the **put <SM\_BT\_file> AXIS\_SM\_1\_slot#.BOOT** command to perform a TFTP.

Replace *slot#* with the number of the SM slot. This step downloads the new bootcode for the SM.

- c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
  - d. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
14. Set the start and end addresses in Flash memory where the firmware file is written for all SMs.
  - a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbfc40000 and end at 0xbfd00000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbfc40000
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbfd00000
```

- b. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_slot#.FW** command to perform a TFTP.

Replace *slot#* with the SM slot number. This step downloads the desired firmware into the SM.

- c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
15. Issue the **clrallcnf** command.

This command resets all cards on the shelf.

16. Set the BRAM revision.
17. Restore the ASC and SM configurations.
18. Issue the **dspadrxlat** command to ensure that the number of connections is correct.
19. Issue the **dsptotals** command for all SMs.

Examine the number of lines, ports, and channels after the downgrade. Compare the values to those before the download to establish whether the configuration has remained the same.

## Procedure 5: Ungraceful Upgrade for 1 ASC Card Set for Versions 2.x to 4.y; 3.x to 4.y

This procedure applies to firmware versions:

- 2.x to 4.y
- 3.x to 4.y

1. Save the current ASC configuration.

Perform this step for the ASC before you upgrade the firmware.

2. Save the current SM configuration for each primary and stand-alone SM.

Perform this step for the SM before you upgrade the firmware.

3. Issue the **dspadrxlat** command and note the value of the *ConnNumOfValidEntries* parameter, which indicates the number of connections.

Issue the command again at the end of the procedure to ensure that the number of connections has not changed.

4. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the configuration of the shelf during the upgrade. Examine the number of lines, ports, and channels before the upgrade. Examine the same configuration parameters after the upgrade to establish whether the configuration has remained the same.

5. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.

This step downloads the new ASC bootcode into the ASC.

a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.

b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.

6. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_ACTIVE.FW** command to perform a TFTP.

This step downloads the new firmware for the active ASC.

7. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.

8. Issue the **dspfwrevs** command to verify the correct firmware revision.

9. Set the start and end addresses in Flash memory where the bootcode file is written for all SMs.

a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbf00000 and end at 0xbf80000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbf00000
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbf80000
```

b. Issue the **put <SM\_BT\_file> AXIS\_SM\_1\_slot#.BOOT** command to perform a TFTP.

Replace *slot#* with the number of the SM slot. This step downloads the new bootcode for the SM.

c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.

d. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.

10. Download the firmware for all SMs.

a. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_slot#.FW** command to perform a TFTP.

Replace *slot#* with the number of the SM slot. This step downloads the desired firmware into the SM.

- b. Check the file size of the downloaded firmware and check whether the firmware has been downloaded successfully to the ASC disk.
  - c. Issue the **dspfwrevs** command to display the firmware revisions.
11. Issue the **resetsys** command.
  12. Issue the **dspadrxlat** command to ensure that the number of connections is correct.
  13. Issue the **dsptotals** command for all primary and stand-alone SMs.

Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

14. Restore the ASC and SM configurations if necessary.

## Procedure 6: Downgrade for 1 ASC Card Set for Versions 4.y to 2.x; 4.y to 3.x

This procedure applies to firmware versions:

- 4.y to 2.x
- 4.y to 3.x

1. Check compatibility.
2. Save the current ASC configuration.

Perform this step for the ASC before you downgrade the firmware.

3. Save the current SM configuration for each primary and stand-alone SM.

Perform this step for the SM before you downgrade the firmware.

4. Issue the **dspadrxlat** command and note the value of the *ConnNumOfValidEntries* parameter, which indicates the number of connections.

Issue the command again at the end of the procedure to ensure that the number of connections has not changed.

5. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the configuration of the shelf during the downgrade. Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

6. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.

This step downloads the desired ASC bootcode into the ASC.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
7. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_ACTIVE.FW** command to perform a TFTP.

This step downloads the desired firmware for the active ASC.

8. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
9. Issue the **dspfwrevs** command to verify the correct firmware revision.
10. Issue the **put <SM\_BT\_file> AXIS\_SM\_1\_slot#.BOOT** command to perform a TFTP for all SMs.

Replace *slot#* with the number of the SM slot. This step downloads the desired bootcode for the SM.

11. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the bootcode is correct.
12. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
13. Set the start and end addresses in Flash memory where the firmware file is written for all SMs.

- a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbfc40000 and end at 0xbf000000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbfc40000
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbf000000
```

- b. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_slot#.FW** command to perform a TFTP.

Replace *slot#* with the number of the SM slot. This step downloads the desired firmware into the SM.

- c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.

14. Issue the **clrallcnf** command.

This command resets all cards on the shelf.

15. Restore the ASC and SM configurations.
16. Issue the **dspadrxlat** command to ensure that the number of connections is correct.
17. Issue the **dsptotals** command for all SMs.

Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

## Procedure 7: Downgrade for 2 ASC Card Set for Versions 4.y to 2.x; 4.y to 3.x

This procedure applies to firmware versions:

- 4.y to 2.x
- 4.y to 3.x

1. Check compatibility.
2. Save the current ASC configuration.

Perform this step for the ASC before you downgrade the firmware.

3. Save the current SM configuration for each primary and stand-alone SM.

Perform this step for the SM before you downgrade the firmware.

4. Issue the **dspadrxlat** command and note the value of the *ConnNumOfValidEntries* parameter, which indicates the number of connections.

Issue the command again at the end of the procedure to ensure that the number of connections has not changed.

5. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the configuration of the shelf during the downgrade. Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

6. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.

This step downloads the desired ASC bootcode into the ASC.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
7. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_ACTIVE.FW** command to perform a TFTP.

This step downloads the desired firmware for the active ASC.

8. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
9. Issue the **dspfwrevs** command to verify the correct firmware revision.
10. Issue the **put <SM\_BT\_file> AXIS\_SM\_1\_slot#.BOOT** command to perform a TFTP for all SMs.

Replace *slot#* with the number of the SM slot. This step downloads the desired bootcode for the SM.

11. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
12. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
13. Set the start and end addresses in Flash memory where the firmware file is written for all SMs.

- a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbfc40000 and end at 0xbf000000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbfc40000
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbf000000
```

- b. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_slot#.FW** command to perform a TFTP.

Replace *slot#* with the number of the SM slot. This step downloads the desired firmware into the SM.

- c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
14. Issue the **clrallcnf** command.

This command resets all cards on the shelf.

15. Restore the ASC and SM configurations.
16. Issue the **dspadrxlat** command to ensure that the number of connections is correct.
17. Issue the **dsptotals** command for all SMs.

Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

## Procedure 8: Ungraceful Upgrade for 1 ASC Card Set for Versions 4.x to 4.y; 4.x to 5.y; 5.x to 5.y

This procedure applies to firmware versions:

- 4.x to 4.y
- 4.x to 5.x
- 5.x to 5.y

1. Save the current ASC configuration.

Perform this step for the ASC before you upgrade the firmware.

2. Save the current SM configuration for each primary and stand-alone SM.

Perform this step for the SM before you upgrade the firmware.

3. Issue the **dspadrxlat** command and note the value of the *ConnNumOfValidEntries* parameter, which indicates the number of connections.

Issue the command again at the end of the procedure to ensure that the number of connections has not changed.

4. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the configuration of the shelf during the downgrade. Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

5. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.

This step downloads the new ASC bootcode into the ASC.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
6. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_ACTIVE.FW** command to perform a TFTP.

This step downloads the new firmware for the active ASC.

7. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
8. Issue the **dspfwrevs** command to verify the correct firmware revision.
9. Issue the **put <SM\_BT\_file> AXIS\_SM\_1\_slot#.BOOT** command to perform a TFTP for all SMs.

Replace *slot#* with the number of the SM slot. This step downloads the new bootcode for the SM.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
10. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_0.FW** command to perform a TFTP for all SMs.

The number 0 represents all relevant SM slots. This step downloads the new firmware for the SM.

Use the TFTP for slot-specific firmware downloads. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_slot#.FW** command to perform TFTP.

- a. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
  - b. Issue the **dspfwrevs** command to display the firmware revisions.
11. Issue the **resetsys** command.

This command resets all cards on the shelf.

12. Issue the **dspadrxlat** command to ensure that the number of connections has not changed during the procedure.
13. Issue the **dsptotals** command for all SMs.

Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

14. Restore the ASC and SM configurations if necessary.

## Procedure 9: Downgrade for 1 ASC Card Set for Versions 4.y to 4.x; 5.x to 4.x; 5.y to 5.x

This procedure applies to firmware versions:

- 4.y to 4.x
- 5.x to 4.x
- 5.y to 5.x

1. Check compatibility.
2. Save the current ASC configuration.
3. Save the current SM configuration for each primary and stand-alone SM.

Perform this step for the SM before you downgrade the firmware.

4. Issue the **dspadrxlat** command and note the value of the *ConnNumOfValidEntries* parameter, which indicates the number of connections.

Issue the command again at the end of the procedure to ensure that the number of connections has not changed.

5. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the configuration of the shelf during the downgrade. Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

6. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.

This step downloads the desired ASC bootcode into the ASC.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
7. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_ACTIVE.FW** command to perform a TFTP.

This step downloads the desired firmware for the active ASC.

- a. Check the file size of the downloaded firmware and check whether the firmware has been downloaded successfully to the ASC disk.
  - b. Issue the **dspfwrevs** command to verify the correct the firmware revision.
8. Issue the **put <SM\_BT\_file> AXIS\_SM\_1\_slot#.BOOT** command to perform a TFTP for all SMs.

Replace *slot#* with the number of the SM slot. This step downloads the desired bootcode for the SM.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
9. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_0.FW** command to perform a TFTP for all SMs

The number 0 represents all relevant SM slots. This step downloads the desired firmware for the SM. Use the TFTP for slot-specific firmware downloads. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_slot#.FW** command to perform a TFTP.

- a. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
  - b. Issue the **dspfwrevs** command to display the firmware revisions.
10. Issue the **clrallcnf** command.

This command resets all cards on the shelf.

11. Restore the ASC and SM configurations.
12. Issue the **dspadrxlat** command to ensure that the number of connections is correct.
13. Issue the **dsptotals** command for all primary and stand-alone SMs.

Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

## Procedure 10: Graceful Upgrade for 2 ASC Card Set for Versions 2.x to 2.y; 3.x to 3.y

This procedure applies to firmware versions:

- 2.x to 2.y
- 3.x to 3.y

1. Save the current ASC configuration.

Perform this step for the ASC before you upgrade the firmware.

2. Save the current SM configuration for each primary and stand-alone SM.

Perform this step for the SM before you upgrade the firmware.

3. Issue the **dspadrxlat** command and note the value of the *ConnNumOfValidEntries* parameter, which indicates the number of connections.

Issue this command again at the end of the procedure to ensure that the number of connections has not changed.

4. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the configuration of the shelf during the upgrade. Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

5. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.

This step downloads the new bootcode into the ASC.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
- b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
- c. Issue the **switchcc** command to switch to the other ASC.
- d. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP to download the new bootcode into the second ASC.
- e. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
- f. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
- g. Issue the **donotupdatestandby** command.

- h. Issue the **put** <ASC\_FW\_file> **AXIS\_ASC\_STANDBY.FW** command to perform a TFTP.
  - i. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
  - j. Issue the **dspfwrevs** command to verify the correct firmware revision.
6. Set the start and end addresses in Flash memory where the bootcode file is written for all SMs.

- a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbfc00000 and end at 0xbfc40000.

```
shelf.1.<Slot>.<type>.<a|s>FlashStartAddr = 0xbfc00000
shelf.1.<Slot>.<type>.<a|s>FlashEndAddr = 0xbfc40000
```

- b. Issue the **put** <SM\_BT\_file> **AXIS\_SM\_1\_slot#.BOOT** command to perform a TFTP for all SMs.

Replace *slot#* with the number of the SM slot. This step downloads the new bootcode for the SM.

- c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - d. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
7. Set the start and end addresses in Flash memory where the firmware file is written for all SMs:

- a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbfc40000 and end at 0xbfd00000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbfc40000
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbfd00000
```

- b. Issue the **put** <SM\_FW\_file> **AXIS\_SM\_1\_slot#.FW** command to perform a TFTP.

Replace *slot#* with the number of the SM slot. This step downloads the desired firmware into the SM.

- c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - d. Issue the **dspfwrevs** command to display the firmware revisions.
8. Issue the **resetcd** <standby\_ASC> command.

This command resets the standby card.

9. Issue the **resetcd** <active\_ASC> command after the standby ASC comes up again.

This command resets the active card and the standby ASC becomes active with minimal service impact.

10. Issue the **resetcd** <stand-alone> command for all stand-alone SMs.

This command resets the stand-alone card.

11. For all primary SMs in all redundancy groups (version 3.x to 3.y):

- a. Issue the **resetcd** <primary\_SM> command.
- b. Issue the **resetcd** <secondary\_SM> command.

12. Issue the **dspadrxlat** command to ensure that the number of connection is correct.

13. Issue the **dsptotals** command for all SMs.

Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

14. Restore the ASC and SM configurations if necessary.

## Procedure 11: Graceful Upgrade for 2 ASC Card Set for Versions 2.x to 4.y; 3.x to 4.y

This procedure applies to firmware versions:

- 2.x to 4.y
- 3.x to 4.y

1. Save the current ASC configuration.

Perform this step for the ASC before you upgrade the firmware.

2. Save the current SM configuration for each primary and stand-alone SM.

Perform this step for the SM before you upgrade the firmware.

3. Issue the **dspadrxlat** command and note the value of the *ConnNumOfValidEntries* parameter, which indicates the number of connections.

Issue this command again at the end of the procedure to ensure that the number of connections has not changed.

4. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the configuration of the shelf during the upgrade process. Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

5. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.

This step downloads the new bootcode into the ASC.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
  - c. Issue the **switchcc** command to switch to the other ASC.
  - d. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP to download the new bootcode into the second ASC.
  - e. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - f. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
  - g. Issue the **donotupdatestandby** command.
  - h. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_STANDBY.FW** command to perform a TFTP.
  - i. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
  - j. Issue the **dspfwrevs** command to verify the correct firmware revision.
6. Set the start and end addresses in Flash memory where the bootcode file is written for all SMs.

- a. Issue the **flashStartAddr** and **flashEndAddr** commands to start the Flash memory file at 0xbfc00000 and end at 0xbfc80000.

```
shelf.1.<Slot>.<type>.<a|s>flashStartAddr = 0xbfc00000  
shelf.1.<Slot>.<type>.<a|s>flashEndAddr = 0xbfc80000
```

- b. Issue the **put <SM\_BT\_file> AXIS\_SM\_1\_slot#.BOOT** to perform a TFTP for all SMs.

Replace *slot#* with the number of the SM slot. This step downloads the new bootcode for the SM.

- c. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - d. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
7. Issue the **resetcd <standby\_ASC>** command.

This command resets the standby card.

8. Issue the **resetcd <active\_ASC>** command after the standby ASC comes up again.
9. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_0.FW** command to perform a TFTP for all SMs.

The number 0 represents all relevant SM slots. This step downloads the desired firmware for the SM.

Use the TFTP for slot-specific firmware downloads. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_slot#.FW** command to perform a TFTP.

- a. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
  - b. Issue the **dspfwrevs** command to verify the correct firmware revision.
10. Issue the **resetcd <stand-alone>** command for all stand-alone SMs.

This command resets the stand-alone card.

11. For all redundancy groups:
  - a. Issue the **resetcd <secondary\_SM>** command and wait until the secondary is upgraded.
  - b. Issue the **softswitch** command.
  - c. Issue the **softswitch <primary\_SM><secondary\_SM>** command.
12. Issue the **dspadrxlat** command to ensure that the number of connections has not changed.
13. Issue the **dsptotals** command for all SMs.

Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

14. Restore the ASC and SM configurations if necessary.

## Procedure 12: Graceful Upgrade for 2 ASC Card Set for Versions 4.x to 4.y; 4.x to 5.x; 5.x to 5.y

This procedure applies to firmware versions:

- 4.x to 4.y
- 4.x to 5.x
- 5.x to 5.y

1. Save the current ASC configuration.

Perform this step for the ASC before you upgrade the firmware.

2. Save the current SM configuration for each primary and stand-alone SM.

Perform this step for the SM before you upgrade the firmware.

3. Issue the **dspadrxlat** command and note the value of the *ConnNumOfValidEntries* parameter, which indicates the number of connections.

Issue this command again at the end of the procedure to ensure that the number of connections has not changed.

4. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the configuration of the shelf during the upgrade process. Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

5. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.

This step downloads the new bootcode for the ASC.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
  - c. Issue the **switchcc** command to switch to the other ASC.
  - d. Issue the **put <ASC\_BT\_file> AXIS\_ASC\_BACKUP.FW** to perform a TFTP to download the new bootcode for the second ASC.
  - e. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - f. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
  - g. Issue the **donotupdatestandby** command.
  - h. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_STANDBY.FW** command to perform a TFTP.
  - i. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
  - j. Issue the **dspfwrevs** command to verify the correct firmware revision.
6. Issue the **put <SM\_BT\_file> AXIS\_SM\_1\_slot#.BOOT** command to perform a TFTP for all SMs.

Replace *slot#* with the number of the SM slot. This step downloads the new bootcode for the SM.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
7. For all SMs, Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_0.FW** command to perform a TFTP.

The number 0 represents all relevant SM slots. This step downloads the desired firmware for the SM.

Use the TFTP for slot-specific firmware downloads. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_slot#.FW** command to perform a TFTP.

- a. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
  - b. Issue the **dspfwrevs** command to verify the correct firmware revision.
8. Issue the **resetcd <standby\_ASC>** command. This command resets the standby card.
  9. Issue the **resetcd <active\_ASC>** command after the standby ASC comes up again.

This command resets the active card and the standby ASC becomes active with minimal service impact.

10. Issue the **resetcd <stand-alone>** command for all stand-alone SMs.

This command resets the stand-alone card.

11. For all redundancy groups:

- a. Issue the **resetcd** <secondary\_SM> command and wait until the secondary is upgraded.
  - b. Issue the **softswitch** <primary\_SM> command.
  - c. Issue the **softswitch** <secondary\_SM> command.
12. Issue the **dspadrxlat** command to ensure that the number of connections has not changed.
  13. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the configuration of the shelf during the upgrade. Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

14. Restore the ASC and SM configurations if necessary.

## Procedure 13: Downgrade for 2 ASC Card Set for Versions 4.y to 4.x; 5.x to 4.x; 5.y to 5.x

This procedure applies to firmware versions:

- 4.y to 4.x
- 5.x to 4.x
- 5.y to 5.x

1. Check compatibility.
2. Save the current ASC configuration.

Perform this step for the ASC before you downgrade the firmware.

3. Save the current SM configuration for each primary and stand-alone SM.

Perform this step for the SM before you downgrade the firmware.

4. Issue the **dspadrxlat** command and note the value of the *ConnNumOfValidEntries* parameter, which indicates the number of connections.

Issue the command again at the end of the procedure to ensure that the number of connections has not changed.

5. Issue the **dsptotals** command for all primary and stand-alone SMs.

Do not change the configuration of the shelf during the downgrade. Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

6. Issue the **put** <ASC\_BT\_file> **AXIS\_ASC\_BACKUP.FW** command to perform a TFTP.

This step downloads the desired bootcode into the ASC.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
  - c. Issue the **switchcc** command to switch to the other ASC.
  - d. Issue the **put** <ASC\_BT\_file> **AXIS\_ASC\_BACKUP.FW** command to perform a TFTP to download the desired bootcode for the second ASC.
  - e. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - f. Issue the **version** command to display the version of the bootcode stored in Flash memory.
7. Issue the **put** <ASC\_FW\_file> **AXIS\_ASC\_ACTIVE.FW** command to perform a TFTP.

This step downloads the desired firmware for the active ASC.

- a. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
  - b. Issue the **dspfwrevs** command to verify the correct firmware revision.
  - c. Issue the **put <ASC\_FW\_file> AXIS\_ASC\_STANDBY.FW** command to perform a TFTP to download the desired firmware for the standby ASC.
  - d. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
  - e. Issue the **dspfwrevs** command to verify the correct firmware revision.
8. Issue the **put <SM\_BT\_file> AXIS\_SM\_1\_slot#.BOOT** command to perform a TFTP for all SMs.

Replace *slot#* with the number of the SM slot. This step downloads the desired bootcode for the SM.

- a. Issue the **chkflash** command to calculate and compare the Flash checksum to ensure that the firmware is correct.
  - b. Issue the **version** command, which displays the version of the bootcode stored in Flash memory.
9. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_0.FW** command to perform a TFTP for all SMs.

The number 0 represents all relevant SM slots. This step downloads the desired firmware for the SM. Use the TFTP for slot-specific firmware downloads. Issue the **put <SM\_FW\_file> AXIS\_SM\_1\_slot#.FW** command to perform a TFTP.

- a. Check the file size of the downloaded firmware and whether the firmware has been downloaded successfully to the ASC disk.
  - b. Issue the **dspfwrevs** command to verify the correct firmware revision.
10. Issue the **clralencf** command.

This command resets all cards on the shelf.

11. Restore the ASC and SM configurations.
12. Issue the **dspadrxlat** command to ensure that the number of connections has not changed.
13. Issue the **dsptotals** command for all SMs.

Examine the number of lines, ports, and channels after the upgrade. Compare the values to those before the download to determine whether the configuration has remained the same.

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