

# Using the **downdisk** Command to Protect PCMCIA Drives on the ASC MGX–8220

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## Introduction

MGX 8220 firmware versions 4.0.19 and 4.1.03 introduced the **downdisk** command. The purpose of the **downdisk** command is to prevent PCMCIA disk corruption by "locking" the disk write function. The **downdisk** command should be issued prior to performing one of the following maintenance actions:

- Removing the MGX 8220 (formerly AXIS) Shelf Controller (ASC) from the shelf.
- Resetting the ASC in slot 3 or 4.
- Using the command line interface (CLI) **resetsys** command.
- Using the CLI **clrallcnf** command.
- Powering down the shelf.

**Note:** For the purposes of this technical tip, ASC refers to all models, including the AX–ASC, AX–ASC/B, AX–ASC2, AX–ASC2F, and any other future models of the ASC equipped with PCMCIA drives.

**Note:** Issuing the **downdisk** command allows the PCMCIA drive to finish any buffered "write-to-disk" operation, thus preventing corruption of sectors on the PCMCIA disk. After the buffered write operation is finished, the disk is safely locked until reset, reseated, or powered down. Field data has revealed that many failures are due to PCMCIA disk corruption that is caused by improper termination of the "write-to-disk" operation. The window of opportunity to corrupt the disk is several milliseconds, depending on the type of disk used. The flash disk technology exhibits a larger window of opportunity for corruption than does the rotating media technology and is, therefore, more susceptible to this type of corruption. However, the flash media has improved Mean Time Between Failure (MTBF) performance over the rotating media since flash media is not damaged by vibration, shock, particulate matter, or mechanical wear.

**Note:** Maintenance staff is encouraged to use the **downdisk** command before removing any ASC; especially when performing one of the maintenance actions listed above on an ASC2F or other ASC with flash media. The proper use of the **downdisk** command will help ensure a longer life for ASC modules.

# Prerequisites

## Requirements

There are no specific requirements for this document.

## Components Used

This document is not restricted to specific software and hardware versions.

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 for Using the `downdisk` Command

The **downdisk** command can be issued on Standby as well as Active ASCs. The `downdisk` command presents the following menu:

```
Do you want to:

1 - Pull out this ASC
<-- This results in disk lock followed by fail card.

2 - Reset this ASC
<-- This results in disk lock followed by reset.

3 - Cancel downdisk

Your choice [3]:
<-- The default option is to cancel the downdisk command.
```

Use the **downdisk** command with the appropriate option on the ASC, depending on the intended maintenance action, as shown below:

downdisk Command Maintenance Actions		
Maintenance Action	Issue downdisk Command On	Option
Remove ASC 3 or 4	ASC 3 or 4	1
Reset ASC 3 or 4	ASC 3 or 4	2
Use CLI <b>resetsys</b> command	ASC 3 and 4	1
Use CLI <b>clralenf</b> command	ASC 3 and 4	1
Power down the shelf	ASC 3 and 4	1

Always use the **downdisk** command for the standby ASC first, if you plan to use the **downdisk** command on both ASCs.

Listed below are the four general steps for using the **downdisk** command:

1. Issue a **cc** command to the target ASC.
2. Issue a **downdisk** command.
3. Select an option (as described in the table above).
4. Perform a maintenance action (as described in the table above).

## downdisk Command Example Scenarios

Examples that demonstrate the three **downdisk** command options, with and without ASC redundancy, are shown below:

### downdisk Command Option One (Example 1A)

In this example, you want to remove the ASC (which is option one for the **downdisk** command). The current ASC is Active and the Standby ASC is installed and in Standby mode.

After issuing the **downdisk** command, you are warned, "Current ASC will FAIL and standby ASC will take over." If you agree to proceed, the following occurs:

1. Active ASC disk is locked.
2. Active ASC goes to FAIL.
3. Standby ASC becomes active.
4. User session ends.
5. You can then choose a maintenance action as shown on the terminal display:

```
Do you want to:

1 - Pull out this ASC
2 - Reset this ASC
3 - Cancel downdisk

Your choice [3]: 1

This ASC will FAIL and Standby ASC will take over
Do you want to proceed (Yes/No)? Yes
```

**Note:** You must spell out the word "Yes" and press the Enter key to execute the **downdisk** command.

### downdisk Command Option One (Example 1B)

In this example, you want to remove the ASC (which is option one for the **downdisk** command). The Current ASC is Active and there is no Standby ASC installed or the Standby ASC is *not* in standby mode.

After issuing the **downdisk** command, you are warned, "There is no Standby and current ASC will have to be pulled out." If you agree to proceed, the following occurs:

1. Active ASC disk is locked.
2. A message informs you to pull out ASC disk or the ASC will be reset in two minutes.
3. User session hangs.
4. You can then choose a maintenance action as shown on the terminal display:

**Note:** If you have not pulled the ASC out in two minutes, the ASC resets automatically. This is the only case where the ASC is automatically reset if the maintenance action is not performed.

```
Do you want to:
```

- 1 - Pull out this ASC
- 2 - Reset this ASC
- 3 - Cancel downdisk

```
Your choice [3]: 1
```

```
There is NO standby
```

```
The ACTIVE ASC will have to be pulled out after downdisk to restore normal shelf fur
```

```
Do you want to proceed (Yes/No)? Yes
```

```
The ASC card maybe safely pulled out NOW
```

```
If not pulled out, this ASC will be automatically reset after 2 minutes...
```

```
In this 1 minute, ASC may not function normally
```

**Note:** You must spell out the word "Yes" and press the Enter key to execute the **downdisk** command.

## downdisk Command Option One (Example 1C)

In this example, you want to remove the ASC (which is option one for the **downdisk** command). The current ASC is Active.

After issuing the **downdisk** command, you are warned, "Current ASC will FAIL." If you agree to proceed, the following occurs:

1. Standby ASC disk is locked.
2. Standby ASC state goes to FAIL.
3. You can then choose a maintenance action as shown on the terminal display:

```
Do you want to:
```

- 1 - Pull out this ASC
- 2 - Reset this ASC
- 3 - Cancel downdisk

```
Your choice [3]: 1
```

```
After downdisk, this ASC will go to FAIL
```

```
Do you want to proceed (Yes/No)? Yes
```

```
axdave.1.4.ASC.s >
```

```
<-- The prompt is returned after typing "Yes."
```

**Note:** The ASC is still operational since the prompt is returned. Also, you must spell out the word "Yes" and press the Enter key to execute the **downdisk** command.

## downdisk Command Option Two (Example 2A)

In this example, you want to reset the ASC (which is option two for the **downdisk** command). The current ASC is Active and a Standby ASC exists.

After issuing the **downdisk** command, you are warned, "Current ASC will be reset." If you agree to proceed, the following occurs:

1. Active ASC disk is locked.

2. Active ASC is reset.
3. Standby ASC will become active.
4. The user session ends and the terminal display is as follows:

```
Do you want to:

1 - Pull out this ASC
2 - Reset this ASC
3 - Cancel downdisk

Your choice [3]: 2

This ASC will be safely reset NOW
Do you want to proceed (Yes/No) ? Yes
```

**Note:** You must spell out the word "Yes" and press the Enter key to execute the reset. Additionally, you must log in to the MGX-8220 again.

## **downdisk Command Option Two (Example 2B)**

In this example, you want to reset the ASC (which is option two for the **downdisk** command). The current ASC is Active and there is no Standby ASC or the Standby ASC failed

After issuing the **downdisk** command, you are warned, "Current ASC will be reset." If you agree to proceed, the following occurs:

1. Active ASC disk is locked.
2. Active ASC is reset. (In this case, the whole shelf is reset.)
3. The user session ends and the terminal display is as follows:

```
Do you want to:

1 - Pull out this ASC
2 - Reset this ASC
3 - Cancel downdisk

Your choice [3]: 2

This ASC will be safely reset NOW
Do you want to proceed (Yes/No) ? Yes

Connection Disconnected!
```

**Note:** You must spell out the word "Yes" and press the Enter key to execute the reset. Additionally, you must log in to the MGX-8220 again.

## **downdisk Command Option Two (Example 2C)**

In this example, you want to reset the ASC (which is option two for the **downdisk** command). Additionally, the current ASC is in Standby.

After issuing the **downdisk** command, you are warned, "Current ASC will be reset." If you agree to proceed, the following occurs:

1. Standby ASC disk is locked.
2. Standby ASC is reset.
3. The terminal display is as follows:

```
Do you want to:

1 - Pull out this ASC
2 - Reset this ASC
3 - Cancel downdisk

Your choice [3]: 2

This ASC will be safely reset NOW
Do you want to proceed (Yes/No) ? Yes

Connection Disconnected!
```

**Note:** You must spell out the word "Yes" and press the Enter key to execute the reset. Additionally, you must log in to the MGX-8220 again.

## downdisk Command Option Three (Example 3)

In this example, you want to cancel the **downdisk** command (which is option three for the command). The current ASC is in Standby or Active.

After issuing the **downdisk** command and selecting option 2, the downdisk operation is cancelled and you will see the following display:

```
downdisk not executed!!!

axdave.1.3.ASC.a >
```

## Frequently Asked Questions About the downdisk Command

### 1. When I execute the downdisk command the ASC "Fail" LED comes on, so is the ASC now usable?

By design, executing the **downdisk** command will cause the ASC's "Fail" LED to illuminate. However, the ASC is not necessarily failed and may be reinstalled, reset, or powered cycled, after which it will return to the Active or Standby mode depending on the presence or absence of a redundant ASC.

### 2. What happens if the downdisk command is issued and completed but the ASC maintenance action is not performed?

In example 1b above, the ASC will reset after 2 minutes. In examples 1a and 1c the ASC will not reset automatically. During the 2 minutes in example 1b and after issuing the **downdisk** command for examples 1a and 1c, the PCMCIA disk cannot be written to. Any configuration actions taken on the shelf may fail since the configuration files cannot be altered. Additionally, the event log will not log events that have occurred since the execution of the command, and TFTP of files cannot be started or will terminate abruptly on execution of the command. However, traffic from the Service Modules will continue normally unless some other event interferes. The intent of the **downdisk** command is to prevent PCMCIA drive failures by quiescing the disk immediately prior to the performing the maintenance action. The downdisk condition is not intended to last long.

### 3. What indicator can be used to show that the maintenance action can be performed after downdisk with option one is executed?

The "Fail" LED will illuminate if not already lit and the *dspcds* screens will show the ASC as "Failed" also. Once either of these indicators is observed, the maintenance action may be performed. It should be noted that the *dspcd* screen will not show the ASC as failed. In order to verify whether the ASC is in downdisk state after issuing the **downdisk** command, simply issue the command again and select

option 1. (See FAQ number 7 below.)

**4. Why should downdisk command option two be used to reset the ASC? Is it better than using the standard CLI resetcd <3||4> command?**

The **downdisk** command option two (reset current ASC) automatically invokes the downdisk option one (locks disk) prior to resetting the current ASC. Choosing option two from the **downdisk** command menu is better than the standard **resetcd <3||4>** command because option two quiesces the PCMCIA flash or hard drive and then resets the current ASC, while the standard CLI **resetcd <3||4>** command does not, leaving the possibility open for corrupting the PCMCIA disk.

**5. Why can't this problem be designed out of the ASC?**

The abrupt termination of a write-to-disk action is a design limitation on most rotating media or flash media products. Significant work would need to be done by vendors to fix either type of media.

**6. Can I issue the downdisk command to the Standby ASC if I am logged into the Active ASC?**

No, the **downdisk** command operates only on the ASC on which you are currently logged in.

**7. What happens if the downdisk command is issued twice prior to the maintenance action?**

The ASC does not allow you to issue a second **downdisk** command on an ASC that has already been put into the downdisk state. The following screen will display:

```
Invalid ASC state, cannot proceed with downdisk  
  
axdave.1.4.ASC.s >
```

**8. Can the downdisk option one be cancelled once it has been executed?**

No. The ASC must be either reset, removed, or power cycled to return the ASC to either the active or standby state.

**Note:** Once an ASC is in the downdisk state, you can cc to another card. However, you can not cc back to the ASC. The ASC must be reset from the active ASC, reseated, or power cycled.

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## Related Information

- **Cisco WAN Switching Solutions – Cisco Documentation**
- **Guide to New Names and Colors for WAN Switching Products**
- **Downloads – WAN Switching Software**
- **Technical Support & Documentation – Cisco Systems**

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