



IBM FlashSystem[®] 840

Firmware Version 1.3.0.10

Applicable systems

This release is only supported for the IBM FlashSystem 840, Machine Types and Models (MTM) 9840-AE1 and 9843-AE1.

Product resources

IBM FlashSystem 840 product resources guide users through the various features and components of the storage system, including usage and troubleshooting guides. To read about this storage system and learn how to use or troubleshoot, see [IBM Knowledge Center](#) for IBM FlashSystem 840 or visit the [IBM Redbooks[®]](#) website for the IBM FlashSystem 840 Product Guide.

Bug severity legend

The following explains the bug severity ranking used for [key fixes](#) and in the [Release history](#):

Severity	Description
S1	Recommended upgrade for all users as soon as possible.
S2	Recommended upgrade for all users at the next scheduled maintenance window
S3	Recommended upgrade at the next scheduled maintenance window only for users experiencing the issue. All others may consider this to be an S4.
S4	Upgrade at the next scheduled maintenance window. May be performed at the discretion of the user if the issue is having a negative impact.
S5	Upgrade is not necessary. This would include a mostly cosmetic or minor annoyance fix.

Latest changes

The current release is Program Temporary Fix (PTF) for IBM FlashSystem 840 customers and includes a minor fix and multiple security remediations.

After initial configuration of the hardware is complete, IBM strongly recommends that you make sure that your IBM FlashSystem firmware is up-to-date. Visit [IBM Fix Central](#) using the link below to see if any updates are available for your system.

Contents

- [Applicable systems](#)
- [Product resources](#)
- [Bug severity legend](#)
- [Latest changes](#)
 - [Latest fixes](#)
 - [Remediated security vulnerabilities](#)
 - [Release features](#)
 - [Known issues](#)
- [Currently supported specifications](#)
- [Release history](#)
- [Upgrading firmware](#)
 - [Release overview](#)
 - [Supported upgrade paths](#)
 - [Preparing to upgrade](#)
 - [Performing the upgrade](#)
 - [Troubleshooting](#)
- [Contact information](#)
- [Copyright notice](#)

Latest fixes

The following fixes are made available with release 1.3.0.10. To view fixes from earlier releases, see the [Release history](#). Available firmware releases are listed on [IBM Fix Central](#). For issue severity definitions, see the [Bug severity legend](#).

S5

- FLASH-26230 - Attempting repeated snaps from the Service Assistant GUI "Collect Logs" panel can fail.

Remediated security vulnerabilities

Multiple vulnerabilities are remediated with this release. Use the associated links below to find out more information about each vulnerability.

- FLASH-25548 - Remediate vulnerabilities in OpenSSH which affect IBM FlashSystem 840 including [CVE-2016-6515](#) and [CVE-2016-6210](#).
- FLASH-26210, 26204, 26203, 26202, 26201, 26200, 26199, 26198, 26197, 26195- Remediate multiple vulnerabilities which affect IBM FlashSystem 840 including [CVE-2018-1433](#), [CVE-2018-1434](#), [CVE-2018-1438](#), [CVE-2018-1461](#), [CVE-2018-1462](#), [CVE-2018-1463](#), [CVE-2018-1464](#), [CVE-2018-1465](#), [CVE-2018-1466](#), and [CVE-2018-1495](#).

More information is available on these vulnerabilities through the following security bulletins:

- [Security Bulletin: Vulnerabilities in OpenSSH affect the IBM FlashSystem models 840 and 900](#)
- [Security Bulletin: Multiple vulnerabilities affect the IBM FlashSystem models 840 and 900](#)
- [Security Bulletin: A vulnerability affects the IBM FlashSystem models 840 and 900](#)

Release features

The following information lists the features that come with the 1.3 release of IBM FlashSystem 840 product.

- 1.3 features

The following are features of all 1.3 releases and are therefore included in the latest release:

- Sector size support on VDisk creation through the GUI
- Interface quality improvements
- The multi-system monitoring GUI tool Neighborhood has been re-enabled.
- Upgrade test utility improvements.

+ 1.2 features

Known issues

To stay up-to-date on current known issues, workarounds, downloads, and other documentation from support, please ensure that you have subscribed to [My Notifications](#).

Currently supported specifications

Protocol	Description
SCSI-SAM-3	SCSI Architecture Model (v3)
SCSI-SPC-3	SCSI Primary Commands (V3)
SCSI-SBC-2	SCSI Block Commands (V2)
SCSI-FCP-3	Fibre Channel (FC) Protocol (V3)
SCSI-SRP	SCSI RDMA Protocol
FC-PH-3	FC Physical and Signaling Interface (V3)
FC-AL-3	FC Arbitrated Loop (V2)

Note: To test or demonstrate concurrent maintenance on canisters and batteries, use [this featured document](#), which describes the recommended process for concurrent maintenance.

Release history

The following sections include a list of all fixes and improvements for previous FlashSystem 840 releases.

– Release 1.3.0.9

The following issues were fixed in release 1.3.0.9:

FLASH-22859 - Remediate vulnerabilities in Java™ CPU ([CVE-2016-5546](#), [CVE-2016-5548](#), [CVE-2016-5549](#), [CVE-2016-5547](#), and [CVE-2016-2183](#)).

FLASH-23390 - Remediate a vulnerability in Apache Tomcat ([CVE-2017-5647](#)).

FLASH-25364 - Staggered battery end of life is needed to ensure that both system batteries will not reach end of life simultaneously. (S1)

FLASH-25519 - Validation should be performed on rebuild/xverify to avoid out of bound addresses. (S2)

FLASH-23501 - Shutting the system down with the `stopssystem -force` command could cause a warmstart if any flash modules are in the failed state or a RAID controller is in the service state. (S3)

+ Release 1.3.0.8

+ Release 1.3.0.7

+ Release 1.3.0.6

+ Release 1.3.0.5

+ Release 1.3.0.4

+ Release 1.3.0.3

+ Release 1.3.0.2

Upgrading firmware

Use the following sections to perform firmware upgrades for your systems to the current release.

Warning: Please read all the instructions below before upgrading.

Release overview

If you are upgrading to this release and your system is healthy, you can perform a Concurrent Code Upgrade (CCU). A CCU is a non-disruptive upgrade and is the preferred upgrade method. For general instructions on performing upgrades, refer to the FlashSystem [Knowledge Center](#).

Supported upgrade paths

The following upgrade paths are supported for this release:

From	From/To	From/To	From/To	To
------	---------	---------	---------	----

1.1.0.x --> 1.1.2.7 --> 1.1.3.8 --> 1.2.1.10 --> 1.3.0.10
1.1.1.x --> 1.1.3.8 --> 1.2.1.10 --> 1.3.0.10
1.1.2.x --> 1.1.3.8 --> 1.2.1.10 --> 1.3.0.10
1.1.3.2 --> 1.1.3.8 --> 1.2.1.10 --> 1.3.0.10
1.1.3.6 --> 1.1.3.8 --> 1.2.1.10 --> 1.3.0.10
1.1.3.7 --> 1.2.1.10 --> 1.3.0.10
1.1.3.8 --> 1.2.1.10 --> 1.3.0.10
1.2.0.x --> 1.2.1.10 --> 1.3.0.10
1.2.1.x --> 1.3.0.10
1.3.0.x --> 1.3.0.10

Preparing to upgrade

CCU is a non-disruptive upgrade, which means that the system remains online throughout the process and that you can continue to access data normally. As a precaution, it is recommended that the upgrade occur during a time of reduced traffic. During the upgrade, the interface adapters in each canister are taken offline temporarily to be upgraded. This might impact performance or throughput. The impact is more noticeable under heavy load conditions. With a properly configured multi-path configuration, access to your data is always maintained.

To ensure a successful, non-disruptive upgrade, you should verify that your interface ports are all online and all the system hardware is functioning normally. Ideally, you should have the following:

- All host interfaces should be online. An active multi-path configuration is required to ensure no loss of access during the upgrade.
- Both batteries should be online and charged. Use the CLI command `lsenclosurebattery` or the management GUI under **Monitoring** --> **Systems** to verify battery status. Note: If the battery status is 'reconditioning,' the firmware upgrade will not be allowed to start until after reconditioning completes. If the battery status is 'reconditioning required,' then you may proceed with the upgrade and perform reconditioning on the battery later. Note also that battery reconditioning can take up to 24 hours to complete.
- All hardware should be online and functioning normally. There should be no unfixed alerts in the event log (see the exceptions below).

Running the upgrade test utility is a required step before concurrent upgrade in firmware versions after 1.2.0.11. The utility checks for problems in the system that might prevent the upgrade from completing successfully and either warns the user or blocks the user from proceeding. IBM Support recommends that all users planning to upgrade run the utility a full day in advance so that any issues called out by the utility can be remedied without delaying the planned upgrade.

To view checks that the upgrade utility makes before an upgrade, see the the release notes for the latest upgrade test utility posted along with each available firmware package on [IBM Fix Central](#).

Important: Before you begin the upgrade, we recommend that you perform a backup of your data and a backup of the FlashSystem configuration. To back up the configuration, log into the cluster management IP address and issue the following command using admin-level authority:

```
svcconfig backup
```

Optionally, you can copy the configuration backup file from the FlashSystem to your workstation using secure copy (scp) on Linux or PuTTY secure copy (pscp.exe) on Windows as in the following examples:

(Using Linux)

```
scp superuser@:/dumps/svc.config.backup.* .
```

(Using Windows)

```
pscp -unsafe superuser@:/dumps/svc.config.backup.* .
```

Note: Do not ignore the periods shown above at the end of each command. In addition, replacement of italicized descriptions within angle brackets with appropriate information is required.

Posted along with the release notes and upgrade files on Fix Central are md5sum text files. These files exist for each update file so that the user can verify that the update file was downloaded correctly.

Performing the upgrade

It is highly recommended that the upgrade be performed using the web-based cluster management interface known as the management GUI. Instructions are available for performing a CCU in IBM Knowledge Center. Search for 'IBM FlashSystem 840,' then navigate to Upgrading the system. Included is information on retrieving software packages, using the update test utility, and automatically updating using either the GUI or the CLI.

Troubleshooting

Use the following sections to troubleshoot problems that may occur during the upgrade process.

Stalled upgrade

If the upgrade takes more than two hours to complete, it may have stalled. Upgrade status is viewed by issuing `lupdate` CLI command or by going to **Settings --> System --> Update System** in the GUI. Both show a 'Stalled' status. In most cases, this can be resolved by aborting the upgrade and reattempting the upgrade after the system downgrades to its original level. To abort the upgrade, issue the `applysoftware -abort` CLI command or click the 'Stop Upgrade' button in the GUI.

After the system is downgraded, you can reattempt your upgrade from the GUI or CLI. If the upgrade stalls repeatedly or if you have alerts which cannot be cleared, [contact IBM Support](#).

Failures during upgrade

You may get a battery or quorum alert during upgrade due to required reconfiguration. These alerts should be automatically cleared when the upgrade is completed. They may be visible from the Events view of the management GUI if the filter is set to 'Show All,' but they should no longer appear in the Recommended Actions, Unfixed Messages, or Alerts views. If you see unfixed battery or quorum alerts after an upgrade is complete, contact IBM Support.

If the upgrade has failed or stopped due to a hardware failure, you will see the 'Hardware Failed' status.

If you suspect a hardware failure, issue the `lupdate` command to confirm the state of your system. This command shows that the system is in a `hardware_failed` state and the event log contains a 'System upgrade suspended' event. You may resume the upgrade by issuing the `applysoftware -resume -force` command for the following conditions:

- PSU unsupported events
- Battery fault type 1 events that are fixed and online according to the CLI command `lenclosurebattery`
- Fan events

If the upgrade cannot be resumed or you have other alerts which cannot be cleared, contact IBM Support. The battery reconditioning feature calibrates the gauge that reports the amount of charge on the batteries. On systems that have been installed for 10 months or more or systems that have experienced several power outages, the recommendation to run 'battery reconditioning' will appear in the event log shortly after upgrading. This is normal. Use the management GUI to run a DMP for this error or see the FlashSystem Knowledge Center to view how to properly issue the `chenclosureslot` command in reference to this issue. Use the following link to access the [Knowledge Center](#) page for battery reconditioning.

Contact information

Call IBM at 1-800-IBM-SERV (1-800-426-7378). To find contact information for a specific region, visit the [IBM directory of worldwide contacts](#).

Copyright notice

IBM, the IBM logo, and `ibm.com` are trademarks or registered trademarks of IBM Corporation in the United States, other countries, or both. These and other IBM trademarked terms are marked on their first occurrence in this information with the appropriate symbol, indicating US registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available [here](#).

The following terms are trademarks of other companies:

- Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.
- Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.
- Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Other product and service names might be trademarks of IBM or other companies.