

IBM System Storage - DS8700 Disk Storage 1 **Microcode Bundle 76.31.131.0 Release Note Information v1.3**

Release Date: December 24, 2014

VRMF Level Data Results:

VRMF level From:	76.31.121.0
VRMF Level To:	76.31.131.0
Report for:	All DS8700

Code Bundle Contents

This table includes code component reference information.

DS8000 Code Bundle Level	SEA or LMC Version: Used with dscli ver command.	CLI Client Level	Storage Manager Code Level
76.31.131.0	6.6.31.1340	6.6.31.1340	5.6.31.1285

Overview of new features and functions supported by this release on DS8700, 242x model 941

At a glance:

- Global Copy Collision enhancement enabled by default
- PPRC Extent Check Penalty enabled
- Apache Tomcat, AppScan, and other security fixes
- Slow drive notification improvement
- Easy Tier data collection improvement
- Problem fixes
- Serviceability enhancements
- Improvements

This new microcode release only supports the DS8700.

Select Modifications Included in this Release Note:

This is a list of some modifications contained across one or more LIC (License Internal Code) or microcode release(s). The potential impact is variable. Specific environments may aggravate or degrade the potential impact. Problem(s) fixed and reported in this release note may not be in higher levels of code bundles.

Definition of Problem Severity:

- 1 High Impact** - Acute: An irrecoverable error with potential loss of data.
- Serious: An irrecoverable error with potential loss of access to data.
- 2 Moderate** - A function not operational and/or performance might be degraded.
- 3 Service** - A recoverable error (no impact) and service improvements.
- 4 Improvements** - Improvement changes for better Usability and Serviceability.

IBM System Storage - DS8700 Disk Storage 2 **Microcode Bundle 76.31.131.0 Release Note Information v1.3**

HIPER: High Impact problem that is Pervasive: 3 or more occurrences

Acute: An irrecoverable error with potential loss of data.

Inconsistencies on PPRC 'D' copy

1. Problem Description: When PPRC pairs are cascaded, an indicator is lost that the 'C' volume is also a PPRC primary. This allows flashcopy establish, without ensuring the copy is being mirrored.

Failure scenario:

- 4 way cascaded (A-B-C-D) migration is used to migrate from a MM pair to a new MM pair, using Global Copy, AND
- Incremental Resync is active on the MM primary, AND
- Hyperswap is used to swap from the old MM primary to the new MM (GC) primary, AND
- FlashCopy is being used on new MM (GC) primary

NOTE: There is no exposure if the migration is a single cascaded Global Copy relationship to migrate from a MM pair to a new volume that will become a MM primary after the Hyperswap

2. Potential Impact of Problem: Undetected data corruption

3. Problem Severity: High Impact

4. Pervasive Problem: No

ID#: 300273

Battery test fails to run with no serviceable event

1. Problem Description: An error condition can prevent periodic battery tests from running, but no serviceable event is created to call attention to the problem. If multiple failed batteries go undetected, data may fail to be preserved during a power outage.

2. Potential Impact of Problem: loss of data

3. Problem Severity: High Impact

4. Pervasive Problem: No

ID#: 300422

Serious: An irrecoverable error with potential loss of access to data.

HIPER Repeated warmstarts triggered by VMWare REPORT_LUNs command

1. Problem Description: VMWare r6 VVOL function has implemented a new variation of the REPORT_LUNs command with SELECT_REPORT field set to a value that was previously not tolerated by DS8700. This results in repeated warmstarts.

2. Potential Impact of Problem: Warmstarts, potential loss of access

3. Problem Severity: High Impact

4. Pervasive Problem: Yes

ID#: 298050

IBM System Storage - DS8700 Disk Storage 3

Microcode Bundle 76.31.131.0 Release Note Information v1.3

Notification of metadata LRC error

- 1. Problem Description:** Open serviceable event SRC BE33CEE1 when daily LRC scan finds bad metadata.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
- ID#: 284786

I/O delay during DDM deconfigure

- 1. Problem Description:** Timeout during command sent to deconfig a not-ready DDM, because Device Adapter is waiting for drive to recover.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
- ID#: 296096

PCIe last path recovery enhancement

- 1. Problem Description:** During error recovery for a PCIe error to a host bay, access can be lost if we have latent PCIe errors on the alternate host bay. This change implements additional recovery strategies when a secondary error occurs on the last path.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
- ID#: 298574

Moderate: A system path is not operational and performance may be degraded.

0x5527 MLE

- 1. Problem Description:** Requests for data mover TCBs can be starved by newer requests which use a different set of paths, when one PPRC path has low available bandwidth and the other is in high failure rate.
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** Yes
- ID#: 237573

Excessive warm demotes to Nearline tier

- 1. Problem Description:** For some workloads, Easy Tier cannot accurately assess Nearline workload, causing excessive Nearline workloads, and warm demotes to Nearline
 - 2. Potential Impact of Problem:** degraded performance
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
- ID#: 296134

IBM System Storage - DS8700 Disk Storage 4

Microcode Bundle 76.31.131.0 Release Note Information v1.3

Slow DDM caused PPRC suspend

- 1. Problem Description:** Failing DDM caused I/O hang during deconfig
- 2. Potential Impact of Problem:** PPRC Suspend
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** Yes

ID#: 296394

Excessive Easy Tier swap plan generation time

- 1. Problem Description:** Multiple time-outs and MLEs caused by Easy Tier taking too long to generate swap plans, and missing heartbeats.
- 2. Potential Impact of Problem:** degraded performance
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** Yes

ID#: 298152

Customer notification of 'Slow Disk' errors

- 1. Problem Description:** Create Customer notification for SRC BE33CEE3 'Slow Disk' errors
- 2. Potential Impact of Problem:** degraded performance
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID#: 298851

IWNR2704E on Global Mirror session pause

- 1. Problem Description:** When > 1 control paths are owned by the Master Alternate Controller (MAC), code does not properly iterate through all the external subordinates owned by the MAC.
- 2. Potential Impact of Problem:** Global Mirror pause failure
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID#: 299406

0x0F6D unit check on zHPF read/write to last (non-full) track

- 1. Problem Description:** Transport Mode: Read Track Data is valid as an embedded CCW Operation Code for Read Tracks (0C). If the Blocksize value is not equal to the value of the data length field in the count area of any record being read, the record is not transferred and the operation is terminated with status that includes unit check (Invalid Track Format).

What we should do is take advantage of the behavior that is now allowed for Read domains (16), where we do not rely on the Regular Data Format bit, but instead, check the format of the track, to understand the host expectations for the amount of data to be read.

Fix Description:

Once we get track access, we will enforce the conditions of the chain's parameters for zHPF. As with the Read Domain, we can allow the Read Tracks domain to a track that has an EOF record. We will then make sure that any assumptions we have made based on regular data format (which is required for Read Tracks as it is for the Read domain) make the correct decisions for an End Of File record.

- 2. Potential Impact of Problem:** Unit Checks
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID#: 301867

IBM System Storage - DS8700 Disk Storage 5 **Microcode Bundle 76.31.131.0 Release Note Information v1.3**

Service: A recoverable error, Service improvements.

PCR 7575 - DSGUI AppScan errors/security vulnerabilities

- 1. Problem Description:** Corrects multiple vulnerabilities
- 2. Potential Impact of Problem:** none
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 294209

False loss-of-access indication on single LPAR

- 1. Problem Description:** LPAR in service mode with a failed Device Adapter indicates a loss of access to data. Operational LPAR was not impacted.
- 2. Potential Impact of Problem:** none
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 298487

0x5171 MLE

- 1. Problem Description:** Track that was destaged is partially restaged from NVS. Subsequent re-access of track without full restage caused a Microcode Logic Error
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 298533

Unable to update power firmware

- 1. Problem Description:** Power firmware update process was blocked by an unrelated DDM failure
- 2. Potential Impact of Problem:** Extended service action
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 298559

Update Apache Tomcat to current versions

- 1. Problem Description:** Older versions of web server lack security fixes.
- 2. Potential Impact of Problem:** none
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 299055

0x7E4F MLE

- 1. Problem Description:** Global Mirror flashcopy establish revertible/withdraw commit issued before deferred bitmap has time to complete, causes a Microcode Logic Error
- 2. Potential Impact of Problem:** Warmstarts
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 299634

IBM System Storage - DS8700 Disk Storage 6 **Microcode Bundle 76.31.131.0 Release Note Information v1.3**

Battery test failures

- 1. Problem Description:** Battery test changes were implemented, but not all of the needed error handling changes were implemented.
- 2. Potential Impact of Problem:** Logical fence of battery units
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 299667

0x0103 MLE

- 1. Problem Description:** CS tries to map an invalid segment because it's accessing a sidefile entry before the entry is complete. This causes a Microcode Logic Error.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 299907

Update PFEDISC11 Process

- 1. Problem Description:** Error in the script that verifies all logical data has been removed during system discontinue process.
- 2. Potential Impact of Problem:** none
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 299953

0x05E0 MLE

- 1. Problem Description:** Global Mirror collision and Global Copy collision on the same track triggers a Microcode Logic Error if the volume is removed from the session while Global Copy transfer is still pending.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 300069

Assist OnSite (AOS) disabled after HMC update

- 1. Problem Description:** Default setting after reinstalling AOS filesets is to disable AOS.
- 2. Potential Impact of Problem:** Must re-enable AOS after update
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** Yes

ID#: 300834

Cannot resume LPAR with failed CEC hard drive

- 1. Problem Description:** Microcode fails trying to fence an already fenced drive. This prevents LPAR resume, even though the other drive is good.
- 2. Potential Impact of Problem:** Extended service action
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 300872

IBM System Storage - DS8700 Disk Storage 7 **Microcode Bundle 76.31.131.0 Release Note Information v1.3**

End-of-call notification of partner HMC down

- 1. Problem Description:** Adds check in End-of-Call process to verify both HMCs are operational
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID#: 301320

Improvements: Improvement for better usability

Remove Apache Struts v1 from GUI

- 1. Problem Description:** On April 30, 2014, a critical Apache Struts vulnerability was published at <http://web.nvd.nist.gov/view/vuln/detail?vulnId=CVE-2014-0114>, with a score high enough to require a fix as soon as possible. It is noted that Apache Struts 1.x is now EOL and cannot be simply replaced with a newer version without significant code rework.

It has been decided to simply eliminate all GUI usage of Apache Struts, and use new Java servlets instead.

- 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Improvement
 - 4. Pervasive Problem:** No
- ID#: 296806

Easy Tier data collection improvements

- 1. Problem Description:** Add sub-tasks to the Easy Tier data collection by area task, and reduce the size of individual sub-packages
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Improvement
 - 4. Pervasive Problem:** No
- ID#: 297112

Permit HMC Customer user ID to generate PE package and statesave

- 1. Problem Description:** May significantly reduce problem analysis time.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Improvement
 - 4. Pervasive Problem:** No
- ID#: 298915

Easy Tier data collection improvements

- 1. Problem Description:** Provide additional functions to collect Easy Tier logs and Easy Tier traces by date
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Improvement
 - 4. Pervasive Problem:** No
- ID#: 299028

IBM System Storage - DS8700 Disk Storage 8

Microcode Bundle 76.31.131.0 Release Note Information v1.3

Allow secondary HMC to report powerfail/firehose dump

- 1. Problem Description:** If power is lost to the base rack, the integrated HMC is unable to report the event. If a secondary HMC exists, this improvement will allow it to report the event.
- 2. Potential Impact of Problem:** none
- 3. Problem Severity:** Improvement
- 4. Pervasive Problem:** No

ID#: 299134

WebSM/AOS callhome change

- 1. Problem Description:** Update callhome records with AOS information
- 2. Potential Impact of Problem:** none
- 3. Problem Severity:** Improvement
- 4. Pervasive Problem:** No

ID#: 300132

PCR 7467 - Enable GCP collision sidefile by default

- 1. Problem Description:** Changes the default setting to enabled.
- 2. Potential Impact of Problem:** none
- 3. Problem Severity:** Improvement
- 4. Pervasive Problem:** No

ID#: 301005

Change IO Priority Manager default

- 1. Problem Description:** Currently, IOPM default is 'monitoring'. Fix will set the default to 'disabled', unless enabled by LIC key.
- 2. Potential Impact of Problem:** none
- 3. Problem Severity:** Improvement
- 4. Pervasive Problem:** No

ID#: 301261

Allow 240 byte device performance record

- 1. Problem Description:** z/OS 1.12 and above now support the 240 byte device performance record.
- 2. Potential Impact of Problem:** none
- 3. Problem Severity:** Improvement
- 4. Pervasive Problem:** No

ID#: 301319

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10

IBM System Storage - DS8700 Disk Storage
Microcode Bundle 76.31.131.0 Release Note Information v1.3

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