

IBM System Storage - DS8870 Disk Storage

Microcode Bundle 87.31.16.0 Release Note Information v1.3

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Release Date: December 24, 2014

VRMF Level Data Results:

VRMF level From:	87.31.2.0
VRMF Level To:	87.31.16.0
Report for:	All DS8870

Code Bundle Contents

This table includes code component reference information.

DS8870 Code Bundle Level	SEA or LMC Version:	DS CLI Client	Easy Tier Client	STAT Tool	Heat Map Transfer Utility	Storage Manager
87.31.16.0	7.7.31.32	7.7.31.32	7.7.31.32	7.7.31.32	7.7.31.32	5.7.31.1016

Overview of new features and functions supported by this release on DS8870, 242x model 961

At a glance:

- Global Copy Collision enhancement enabled by default
- RAID10 rebuild duration reduction
- Apache Tomcat, AppScan, and other security fixes
- Battery end of life bug calculation - DC UPS FW 03-47
- Easy Tier data collection improvement
- Reduce Secure Data Overwrite pre-check duration
- Improved High Performance Flash rank/adaptor utilization

This new microcode release only supports the DS8870.

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.

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

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Acute: An irrecoverable error with potential loss of data.

HIPER Killstrip error logs are not processed by DA

1. **Problem Description:** Killstrip processing is delayed until the host executes a read to that location.
 2. **Potential Impact of Problem:** loss of data
 3. **Problem Severity:** High Impact
 4. **Pervasive Problem:** Yes
- ID#: 299666

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

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 DS8870. 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

DA metadata LRC error caused a dual reboot

1. **Problem Description:** Processor hardware error corrupted an unused Device Adapter metadata track. The error subsequently caused a dual reboot.
 2. **Potential Impact of Problem:** loss of access
 3. **Problem Severity:** High Impact
 4. **Pervasive Problem:** No
- ID#: 293522

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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

HIPER Slow DDM rejected by one DA is not rejected by partner DA

1. **Problem Description:** When a DDM is rejected by DAHP for being slow the partner adapter may not reject the drive the DDM does not respond to commands. The microcode logic should reject the DDM on both adapters without waiting for the DDM to respond.
 2. **Potential Impact of Problem:** loss of access
 3. **Problem Severity:** High Impact
 4. **Pervasive Problem:** Yes
- ID#: 300024

0x14E MLE and loss of access

1. **Problem Description:** System deadlocked because no cache segments are free, and cache SMP segment scan is stalled.
 2. **Potential Impact of Problem:** loss of access
 3. **Problem Severity:** High Impact
 4. **Pervasive Problem:** No
- ID#: 301701

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

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

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

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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

Long write response after upgrade to 7.3 code

1. **Problem Description:** Insufficient cache queueing timestamp granularity
2. **Potential Impact of Problem:** degraded
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID#: 300242

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

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

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PPRC path failure causes 0x7473 MLE

1. **Problem Description:** A permanent PPRC path failure during data transfer can cause a Microcode Logic Error
 2. **Potential Impact of Problem:** Warmstart
 3. **Problem Severity:** Service
 4. **Pervasive Problem:** Yes
- ID#: 297669

Apache Tomcat chunk denial of service vulnerability

1. **Problem Description:** CVE-2014-0075, CVE-2014-0095, CVE-2014-0096, CVE-2014-0099, CVE-2014-0119
 2. **Potential Impact of Problem:** none
 3. **Problem Severity:** Service
 4. **Pervasive Problem:** No
- ID#: 298087

STAT workload skew report incorrect

1. **Problem Description:** We have two problems here:
 - a) Extents are not sorted by bandwidth when generating the heat files;
 - b) When generating the CSV files, code uses the extents sorted by the total I/O, instead of heat I/O;These two problems cause an incorrect skew curve for bandwidth based on the CSV files
 2. **Potential Impact of Problem:** Incorrect workload reporting
 3. **Problem Severity:** Service
 4. **Pervasive Problem:** No
- ID#: 298335

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

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Repair action fails if HMC and SF are at different code levels

1. **Problem Description:** Unable to perform service actions after HMC has been updated, but before SFI code has been updated.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID#: 298881

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

HMC Healthcheck failed at: verifyHMCFileSystemSize

1. **Problem Description:** Accumulation of monitor files from processes that have exited.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID#: 299747

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

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

Excessive MRPD data transmit time

1. **Problem Description:** Collection of data for logicalVolume and logicalSubsystem caused MRPD dataset to become very large.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID#: 300113

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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

CEC down, but no callhome

1. **Problem Description:** Callhome data contained special symbols in XML text, causing the callhome process to fail. No impact, but a second CEC failure would cause loss of access.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID#: 300934

FlashCopy Manager script failure

1. **Problem Description:** Failure was caused by malformed UnitSerial field in inquiry page C2h
2. **Potential Impact of Problem:** Scripting fails
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID#: 301289

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 was 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

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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

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

Enable Global Copy 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

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