

IBM System Storage - DS8900F Disk Storage

Microcode Bundle 89.32.37.0 Release Note Information v1.2

Release Date: December 16, 2022

VRMF Level Data Results:

VRMF level From:	89.31.26.0
VRMF Level To:	89.32.37.0
Report for:	DS8900F

Code Bundle Contents

DS8900F Code Bundle Level	SEA or LMC Version:	DSCLI Client	Heat Map Transfer Utility	Storage Manager	Copy Services Manager
89.32.37.0	7.9.32.101	7.9.32.101	7.9.32.101	5.9.32.1043	6.3.4

Overview of new features and functions supported by this release on DS8900F 5341 models 993/994/996/998

At a glance:

- Multi-Factor Authentication support
- Support Client-provided certificates for call-home and remote support access
- Code fixes and improvements

This new microcode release supports DS8900F systems only.

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: Irrecoverable error with potential loss of data. - Serious: Irrecoverable error with potential loss of access to data, or critical function.
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.

None.

Serious: An irrecoverable error with potential loss of access to data, or critical function.

Failure to establish additional PPRC relationships

- 1 Problem Description:** Multi-Target relationships could not be created because there were no free primary relationship entries. Original Relation IDs still existed in the control structures, but were not reused. <https://www.ibm.com/support/pages/node/6857809>
 - 2 Potential Impact of Problem:**
 - Unexpected full copy
 - Unable to create Multi-Target relations
 - 3 Environment:** Copy services – See notification link.
 - 4 Problem Severity:** High Impact
 - 5 Pervasive Problem:** No
- ID# 358170

zOS HyperSwap failure

- 1 Problem Description:** An unusual channel configuration resulted in excessive asynchronous status events and channel aborts during HyperSwap.
 - 2 Potential Impact of Problem:** Loss of access
 - 3 Environment:** CKD workloads with HyperSwap
 - 4 Problem Severity:** High Impact
 - 5 Pervasive Problem:** No
- ID# 358897

Dual LPAR crash

- 1 Problem Description:** PCIe error to a single I/O enclosure caused each LPAR to crash in sequence.
 - 2 Potential Impact of Problem:** Loss of access
 - 3 Environment:** All
 - 4 Problem Severity:** High Impact
 - 5 Pervasive Problem:** No
- ID# 359267

Systems running Safeguarded Copy may experience a loss of access

- 1 Problem Description:** <https://www.ibm.com/support/pages/node/6848877>
 - 2 Potential Impact of Problem:** Loss of access
 - 3 Environment:** DS8900F R9.3 and Safeguarded Copy
 - 4 Problem Severity:** High Impact
 - 5 Pervasive Problem:** No
- ID# 359405

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

Host Adapter 0x0B8A MLE

- 1 Problem Description:** On HA ports that are experiencing receive errors, multiple Extended Link Service recovery actions may be stacked. HA code may then attempt to process the next ELS before the prior ELS has completed it's work.
- 2 Potential Impact of Problem:** Warmstart
- 3 Environment:** Systems with 16Gb or 32Gb Host Adapters.
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** Yes

ID# 355331

A FlashCopy track was incorrectly prestaged

- 1 Problem Description:** Prestage was attempted on some tracks that were already copied.
- 2 Potential Impact of Problem:** Degraded performance
- 3 Environment:** Systems running FlashCopy
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 355847

Safeguarded Copy roll-off failure

- 1 Problem Description:** An external roll-off request may collide with an internally requested roll-off, resulting in roll-off failure.
- 2 Potential Impact of Problem:** Safeguarded Copy out-of-space
- 3 Environment:** Systems running Safeguarded Copy
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 356806

Write response time Increase with write cache delays

- 1 Problem Description:** EasyTier may pause migration activity after bandwidth spikes caused by unmap activity, during FlashCopy establish, or Safeguarded Copy roll-off.
- 2 Potential Impact of Problem:** Degraded performance,
- 3 Environment:** All using FlashCopy or Safeguarded Copy.
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 358475

0x1045 MLE

- 1 Problem Description:** Cache requested prestage with endSector greater than number of sectors in the track.
- 2 Potential Impact of Problem:** Warmstart
- 3 Environment:** All
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 358574

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0x4143 MLE - End of Chain task timeout

- 1 Problem Description:** Deadlock occurred on a read operation to a metadata track that was locked by another component.
- 2 Potential Impact of Problem:** Warmstart
- 3 Problem Severity:** Moderate
- 4 Pervasive Problem:** No

ID# 358787

Safeguarded Copy out of space

- 1 Problem Description:** Enhancements for Safeguarded Copy Stage/Destage may lead to conditions in which tracks allocated are not returned for usage if the operation fails. More likely to occur when Safeguarded Copy is GM secondary.
- 2 Potential Impact of Problem:** Safeguarded Copy failure
- 3 Environment:** Safeguarded Copy on R9.3
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** Yes

ID# 358800

SRC=BE1E2170 TCB deadlock

- 1 Problem Description:** Enhancements for Safeguarded Copy Stage/Destage may lead to a race condition and Task Control Block deadlock while requesting metadata access.
- 2 Potential Impact of Problem:** Warmstart
- 3 Environment:** R9.3 and CKD workloads with Safeguarded Copy
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** Yes

ID# 358873

DS CLI mkhost command failed with CMUN02270E

- 1 Problem Description:** mkhost failed with maximum count reached, after 4191 ports created, well short of the architected maximum of 8192.
- 2 Potential Impact of Problem:** Unable to create host ports
- 3 Environment:** All Open Systems
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 358956

High response time caused by lock contention

- 1 Problem Description:** Thousands of tasks were all trying to suspend the same volume,
- 2 Potential Impact of Problem:** Degraded performance
- 3 Environment:** All PPRC
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 359010

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Encryption re-key failed with CMUN81370E

- 1 Problem Description:** Re-key from Gemalto KeySecure to Thales CipherTrust failed because code did not properly recognize Thales CipherTrust.
 - 2 Potential Impact of Problem:** Re-key failure
 - 3 Environment:** All
 - 4 Problem Severity:** Moderate
 - 5 Pervasive Problem:** No
- ID# 359032

Global Mirror session went fatal

- 1 Problem Description:** GM Establish Revertible failed because an unexpected FlashCopy revertible command in progress flag was set.
 - 2 Potential Impact of Problem:** Extended GM recovery
 - 3 Environment:** All Global Mirror since R8.5 GA
 - 4 Problem Severity:** Moderate
 - 5 Pervasive Problem:** No
- ID# 359215

0x2544 MLE

- 1 Problem Description:** Unusual order of operations leads to a counter going negative during staging of a track.
 - 2 Potential Impact of Problem:** Warmstart
 - 3 Environment:** All
 - 4 Problem Severity:** Moderate
 - 5 Pervasive Problem:** No
- ID# 359276

HMCs accessing root DNS servers after update to R9.3

- 1 Problem Description:** HMCs trying to access external servers because new base code implemented unbound-anchor.timer.
 - 2 Potential Impact of Problem:** Security exposure
 - 3 Environment:** All R9.3
 - 4 Problem Severity:** Moderate
 - 5 Pervasive Problem:** No
- ID# 359368

0x1810/0x1811 MLE

- 1 Problem Description:** During destage in write-through path, daArea in the Cache Directory Control Block was not cleared.
 - 2 Potential Impact of Problem:** Warmstart
 - 3 Environment:** All
 - 4 Problem Severity:** Moderate
 - 5 Pervasive Problem:** No
- ID# 359647

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Copy Services Manager PPRC query failed with reason 3800

- 1 Problem Description:** ESSNI fails to get table entries from multiple kernel pipe requests, resulting in 0xF28 timeouts.
- 2 Potential Impact of Problem:** Degraded CSM performance,
- 3 Environment:** CSM-managed PPRC
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 359691

Service: A recoverable error, Service improvements

Host Adapter communication timeout

- 1 Problem Description:** After performing a single-port wrap test, an internal flag is left in the wrong state, which causes no operational problem, but will cause adapter timeout during actions that perform a warmstart or failover.
- 2 Potential Impact of Problem:** Extended recovery during warmstart or failover.
- 3 Environment:** All DS8900F running R9.3
- 4 Problem Severity:** Service
- 5 Pervasive Problem:** Yes

ID# 351511

0x02B7 MLE

- 1 Problem Description:** Last track in the Track ID list is very busy, with many tasks vying for access. This can lead to task timeouts while trying to obtain a lock.
- 2 Potential Impact of Problem:** ODD Dump
- 3 Environment:** All
- 4 Problem Severity:** Service
- 5 Pervasive Problem:** No

ID# 358171

CPC Hard Drive Rebuild failure

- 1 Problem Description:** Lpar failed to join peer domain during HDR process.
- 2 Potential Impact of Problem:** Extended service action.
- 3 Environment:** All
- 4 Problem Severity:** Service
- 5 Pervasive Problem:** No

ID# 358326

PPRC path failure reason is not shown

- 1 Problem Description:** In DS GUI, the reason for PPRC path failures is not being shown.
- 2 Potential Impact of Problem:** Extended service action
- 3 Environment:** All using PPRC and DS GUI
- 4 Problem Severity:** Service
- 5 Pervasive Problem:** No

ID# 359245

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Improvements: Improvements for better usability

Support new error code sense for failbackpprc

- 1 Problem Description:** Create and return new 0x7415 code when receiving sense data 0F74-15 from microcode.
 - 2 Potential Impact of Problem:** None
 - 3 Environment:** Systems running PPRC
 - 4 Problem Severity:** Improvement
 - 5 Pervasive Problem:** No
- ID# 357731

Data capture enhancement for 0x7F05 MLE

- 1 Problem Description:** Improve data capture for a rare microcode logic error that can trigger a warmstart.
 - 2 Potential Impact of Problem:** None
 - 3 Environment:** Systems running FlashCopy
 - 4 Problem Severity:** Improvement
 - 5 Pervasive Problem:** No
- ID# 358054

Host Adapter recovery enhancement

- 1 Problem Description:** Enhance recovery routines to perform a power cycle of the adapter.
 - 2 Potential Impact of Problem:** None
 - 3 Environment:** All
 - 4 Problem Severity:** Improvement
 - 5 Pervasive Problem:** No
- ID# 358674

Remove ODDs from warmstart notification

- 1 Problem Description:** Non-disruptive ODD Dumps should not trigger warmstart notifications.
 - 2 Potential Impact of Problem:** None
 - 3 Environment:** All
 - 4 Problem Severity:** Improvement
 - 5 Pervasive Problem:** No
- ID# 359318

Improve FlashCopy recovery

- 1 Problem Description:** Implement FTDC to collect good data and clear the troubled state
 - 2 Potential Impact of Problem:** None
 - 3 Environment:** All FlashCopy
 - 4 Problem Severity:** Improvement
 - 5 Pervasive Problem:** No
- ID# 359358

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Host Adapter First-Time Data Capture

- 1 Problem Description:** FTDC - Detect possible buffer leakage in FICON microcode
- 2 Potential Impact of Problem:** None
- 3 Environment:** All CKD
- 4 Problem Severity:** Improvement
- 5 Pervasive Problem:** No

ID# 359432

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