

IBM System Storage - DS8880 Disk Storage

Microcode Bundle 88.55.9.0 Release Note Information

Release Date: April 1, 2020

VRMF Level Data Results:

VRMF level From:	88.54.37.0
VRMF Level To:	88.55.9.0
Report for:	All DS8880

Code Bundle Contents

DS8880 Code Bundle Level	SEA or LMC Version:	DSCLI Client	Heat Map Transfer Utility	Storage Manager	Copy Services Manager
88.55.9.0	7.8.55.22	7.8.55.22	7.8.55.22	5.8.55.1010	6.2.7

Overview of new features and functions supported by this release

At a glance:

- Code fixes

This new microcode release supports DS8880 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.

Incorrect volume LRC

- 1. Problem Description:** During base and alias volume creation, insufficient locking may lead to incorrect LRC calculation.
 - 2. Potential Impact of Problem:** loss of data
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
- ID# 344090

Inconsistent data on secondary after error recovery

- 1. Problem Description:** Error recovery while forming FlashCopy Consistency Groups, across multiple LSSs, may result in one or more LSSs coming out of freeze earlier than the others.
Note: Complete fix will require Co-Req APARs OA59936 (SDM) and PH26701 (GDPS)
 - 2. Potential Impact of Problem:** Data inconsistency
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
- ID# 347624

Potential data inconsistency after failover

- 1. Problem Description:** IBM i systems may encounter inconsistent data when skip writes are interrupted by cluster hardware failover.
 - 2. Potential Impact of Problem:** loss of data
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
- ID# 348193

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

HIPER SRC=BE352662 Host Adapter zHPF Global CRC error

- 1. Problem Description:** An unusual zHPF chain led to CRC errors, and fencing of multiple Host Adapters.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** Yes
- ID# 345019

0x01B7:801A MLE

- 1. Problem Description:** Summary Event Notification processing is using inefficient iterative methods, contributing to thread timeouts.
 - 2. Potential Impact of Problem:** ODD Dump, Warmstart, Failover, or HyperSwap Failure
 - 3. Problem Severity:** Varies depending on workload.
 - 4. Pervasive Problem:** Yes – Odd Dump
- ID# 345941

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SRC=BE1E218D Fixed block microcode timeout

- 1. Problem Description:** SafeGuarded Copy ran into an out-of-space condition, but older backups were not rolled off.
- 2. Potential Impact of Problem:** Temporary loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No

ID# 346455

VRAID adapter left in service mode

- 1. Problem Description:** After a pseudo-repair of a VRAID adapter, the adapter was left in service mode. Subsequent repair of the partner adapter was allowed to proceed, causing loss of access.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No

ID# 346737

SafeGuarded Copy filling up extent pools

- 1. Problem Description:** SGC was filling up pools faster than older backups were being removed. Fix provides a pokeable setting to fail the SGC relation if the pools are filling up, to avoid failing host I/O.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No

ID# 347244

Repeated 0x0109 MLEs running Concurrent Copy

- 1. Problem Description:** 0x7D0E ODD Dump failed to clear a lock, leading to multiple 0x0109 MLEs and repeated warmstarts.
- 2. Potential Impact of Problem:** Repeated warmstarts, single cluster reboot
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No

ID# 347490

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

Resource Manager failure

- 1. Problem Description:** Resource Manager runs out of Adapter Platform Object Model file descriptors.
- 2. Potential Impact of Problem:** Copy Service Manager/CS Toolkit communication failure
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** Yes

ID# 320360

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Performance dip / 0x01B7:3041 MLE after a warmstart

- 1. Problem Description:** Lock contention on global Reconnect Control Block resources.
- 2. Potential Impact of Problem:** degraded performance
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** Yes

ID# 335072, 340755

MetroMirror suspended

- 1. Problem Description:** Data arrived out of order at the secondary, causing the secondary to send unexpected status to the primary.
- 2. Potential Impact of Problem:** PPRC Suspend
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 340716

0x790B MLE running Dataset-level cascaded FlashCopy

- 1. Problem Description:** While creating and withdrawing multiple relationships, a microcode logic error was encountered in Background Copy queue management.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 341109

0x05E0 MLE

- 1. Problem Description:** Incorrect control structures were found when presenting PPRC path notifications.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** Yes

ID# 341866

0x07D2 Host Adapter MLE while removing PPRC paths

- 1. Problem Description:** Host Adapter was very busy processing a large number of PPRC path removes, and missed a heartbeat timer interval.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 343299

Stale LDAP cache

- 1. Problem Description:** ESSNI does not detect LDAP changes, and continues to use cached tokens.
- 2. Potential Impact of Problem:** Security exposure
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 344326

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0x516C MLE

- 1. Problem Description:** In a persistent all-registrants reserve, code did not properly handle the case where a reconnecting host triggered a read of reserve metadata, and the listed originator of the reserve was no longer registered. Second half is to automatically clear stale Persistent Reserve metadata during IML.
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** Yes
- ID# 344552, 346629

Host timeout during HyperSwap

- 1. Problem Description:** Add a poke to disable the release space process during PPRC Failback.
 - 2. Potential Impact of Problem:** degraded performance
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
- ID# 344999

Track destage thread stalled

- 1. Problem Description:** A small timing window exists where a Task Control Block can hang while waiting for a flag to be cleared, but the task that would clear the flag has already completed. This condition will persist until the system is warmstarted.
 - 2. Potential Impact of Problem:** PPRC suspend
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** Yes
- ID# 345144

CMUN02947E error removing SafeGuarded Copy volumes

- 1. Problem Description:** After withdrawing SafeGuarded Copy consistency groups and terminate SGC, reservations remained on the volumes, preventing their removal.
 - 2. Potential Impact of Problem:** Unable to remove former SGC volumes
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
- ID# 345211

Copy Services Manager unable to communicate with HMCs

- 1. Problem Description:** ESSNI is unable to execute firewall scripts because of a path issue.
 - 2. Potential Impact of Problem:** HMC communication failure
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
- ID# 346028

RPO falling behind

- 1. Problem Description:** Large Global Mirror environments may exceed existing resource allocations for FlashCopy per cluster and port.
 - 2. Potential Impact of Problem:** degraded performance
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
- ID# 346138

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PPRC path throughput imbalance

- 1. Problem Description:** Path selection algorithms may incorrectly calculate path activity in some environments. Additional options are being provided, that can be enabled by poke.
- 2. Potential Impact of Problem:** degraded performance
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 346458

0x1D07 MLE

- 1. Problem Description:** During high zHPF write activity, a write operation may encounter a microcode logic error while waiting for a data buffer.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 346587

0x516C MLE

- 1. Problem Description:** In a persistent all-registrants reserve, code did not properly handle the case where a reconnecting host triggered a read of reserve metadata, and the listed originator of the reserve was no longer registered. Second half is to automatically clear stale Persistent Reserve metadata during IML.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** Yes

ID# 346629

Erratic SafeGuarded Copy consistency group performance

- 1. Problem Description:** SafeGuarded Copy check-in task is not running at a high enough priority.
- 2. Potential Impact of Problem:** degraded performance
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 346680

Host Adapter 0x0B8A MLE

- 1. Problem Description:** During HA fastload, failure to handle linked commands triggered a microcode logic error in the adapter.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 346953

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0x0109 MLE

- 1. Problem Description:** Pathing thread attempted to lock a unit address control block that it already held the lock for.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 346977

Vary path online failure

- 1. Problem Description:** Host Adapter ports were stuck in "Remove Logical Path in Progress" state.
- 2. Potential Impact of Problem:** loss of path
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 346983

0xB10A MLE

- 1. Problem Description:** Host adapter received unexpected PProcess LogOut on a PPRC path. PRLO is specific to FICON, and should not be seen on a Fibre Channel Protocol port.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 347305

Global Mirror FlashCopy hang

- 1. Problem Description:** While attempting to quiesce Background QuickInit on a volume, a data structure was zeroed, causing quiesce code to indicate the quiesce was still in progress
- 2. Potential Impact of Problem:** PPRC suspend
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 347334

0x05E0 MLE

- 1. Problem Description:** A task freed it's lock before it was completely done processing.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 347497

0x6070 Host Adapter MLE

- 1. Problem Description:** Host Adapter received Link Busy from a FICON channel, when no I/O was in progress.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 347540

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Host Adapter communication timeout after cluster quiesce

- 1. Problem Description:** Code load process requested ODD collection, but did not wait for data collection to finish, before quiescing the next LPAR.
- 2. Potential Impact of Problem:** Warmstart
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 347685

Fixed Block BUSY Status on read

- 1. Problem Description:** Read operation on FlashCopy source is receiving "Try later" response caused by invalid flags while checking for a revertible relation.
- 2. Potential Impact of Problem:** degraded performance
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 347832

Make journal block reclamation pokeable persistent

- 1. Problem Description:** csjrFreshMgrTimeoutSec pokeable did not persist through cluster IML.
- 2. Potential Impact of Problem:** degraded performance
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 347918

Adjust data stripe destage calculations

- 1. Problem Description:** Destage code is not optimized for current stripe structure, where extents may not begin on a stripe boundary.
- 2. Potential Impact of Problem:** degraded performance
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 348119

Read cache performance on background copy workloads

- 1. Problem Description:** Changes made to improve cleaning of metadata extents created some unintended side-effects for sequential read operations.
- 2. Potential Impact of Problem:** degraded performance
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 348133

DS GUI and DSCLI login fails with CMUN00018E

- 1. Problem Description:** Authentication timeouts led to a timer failing to reset.
- 2. Potential Impact of Problem:** Unable to access the HMC
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID# 347870

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Service: A recoverable error, Service improvements.

AOS connection failure

- 1. Problem Description:** Assist OnSite connection via proxy fails, and AOS must be restarted.
- 2. Potential Impact of Problem:** Remote support access failure
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID# 327293

REST API '500' error

- 1. Problem Description:** Transparent Cloud Tiering connector is unable to communicate in systems that are changed to an alternate internal address range.
- 2. Potential Impact of Problem:** none
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID# 341148

REST API shows incorrect CKD capacity

- 1. Problem Description:** Capacity units were changed from extents for both Fixed Block and Count-Key-Data, to MB for FB, and cylinders for CKD. But conversion was not provided for cylinders to MB.
- 2. Potential Impact of Problem:** none
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID# 341739

LPAR dumps "re-compressed" during IML

- 1. Problem Description:** When pruning old dumps, the newest should not be pruned, regardless of age.
- 2. Potential Impact of Problem:** none
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID# 342391

0x01B7:2002 MLE

- 1. Problem Description:** Tasks that are queued waiting on a resource, will begin processing as soon as that resource is available. In systems with very high activity, that task may not be able to obtain a thread within the allotted time.
- 2. Potential Impact of Problem:** ODD Dump
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID# 342636

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0x01B7:3043 MLE

- 1. Problem Description:** High numbers of unsolicited status interrupt threads may encounter ReConnect Control Block contention, leading to thread timeouts.
 - 2. Potential Impact of Problem:** ODD Dump
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** Yes
- ID# 343541

Unable to install Customer-signed certificates using Chrome

- 1. Problem Description:** Unable to upload certificate files using newer versions of Chrome browser.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** Yes
- ID# 344292

0x980A and 0x01E8 MLEs

- 1. Problem Description:** Error recovery failure when a single Rack Power Control card lost communication with both DC-UPSs
 - 2. Potential Impact of Problem:** ODD Dumps
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 345082

CMUN00017E while attempting password change

- 1. Problem Description:** User created under a custom role cannot change their own password
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 345571

UPS battery replacement failure

- 1. Problem Description:** Model 983 UPS battery replacement failed because the new battery was greater than 8 months old.
 - 2. Potential Impact of Problem:** Extended service action
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 345674

Expansion rack install failure

- 1. Problem Description:** Rack object harvest failed because of a syntax error.
 - 2. Potential Impact of Problem:** Extended service action
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 345881

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HMC hang condition

- 1. Problem Description:** HMC hang, cleared by reboot. This fix will add a function from R9 code to monitor and collect additional data to aid in problem determination.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 345949

0x01B7:506A MLE

- 1. Problem Description:** Lock contention on Copy Services SideFile and eXtended Distance Consistency Session locks, during periods of high Global Mirror collision activity.
 - 2. Potential Impact of Problem:** ODD Dump
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** Yes
- ID# 345989

HMC console Shift+M shortcut fails

- 1. Problem Description:** After opening browser, DS Storage Manager link works, but Shift+M shortcut displays an error.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 346048

DS GUI audit log offload fails

- 1. Problem Description:** Two ESSNI functions were combined into a single .jar file in R8.5 SP1.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 346266

DS GUI displays incorrect Fibre Channel port state information

- 1. Problem Description:** In Settings -> Fibre Channel Ports -> State Column, GUI is showing incorrect "Online" status.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 346302

SSD spare taken for HDD array site

- 1. Problem Description:** In rare cases, a 400G SSD spare may be used to spare out a 300G DDM during dual loop rebalance on intermixed DA pairs.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 346338

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0x5170 MLE

- 1. Problem Description:** FlashCopy withdraw encountered a deadlock condition when the target volume was also in Validation Required state.
 - 2. Potential Impact of Problem:** ODD Dump
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 346528

DS GUI cache resync hang

- 1. Problem Description:** Volume Rebalance was stalled because it encountered out of space condition on target ranks, then restarted rather than processing the next queue.
 - 2. Potential Impact of Problem:** DS GUI storage manager hang
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 346610

Unable to login to WUI

- 1. Problem Description:** WUI login fails if default "Customer" ID does not exist. (Customer ID is automatically removed when creating other users with "esshmccustomer" role.)
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** Yes
- ID# 346643

Test Callhome utility failure

- 1. Problem Description:** When running Test Callhome utility, two synchronous processes conflict, causing process hang and eventual test failure.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 346851

Unable to access DS GUI

- 1. Problem Description:** After code update, DS GUI cache refresh was slowed by query threads consuming large amounts of CPU time.
 - 2. Potential Impact of Problem:** DS GUI login failure
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 346852

DS GUI does not show performance data

- 1. Problem Description:** Performance graph does not display when the system has less than 25 minutes of performance data accumulated.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 346907

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CMUN80000E login failure after Customer network IP change

- 1. Problem Description:** If the first configured remote authentication URL is unreachable, HMC does not retry over the second configured URL.
 - 2. Potential Impact of Problem:** Unable to authenticate via LDAP
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 346946

CSM communication failure

- 1. Problem Description:** A stuck thread in ESSNI causes queries from Copy Services Manager to fail. This change will perform a thread dump when an ESSNI PE package is collected prior to restart.
 - 2. Potential Impact of Problem:** CSM in Severe status
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 347048

0x7E1D MLE during PMFLC establish on cascaded secondary

- 1. Problem Description:** After waiting 15 seconds for sync to complete, primary retried the Preserve Mirror FlashCopy establish, but retry found the relationship already exists.
 - 2. Potential Impact of Problem:** ODD Dump
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 347123

Incorrect DSCLI help text

- 1. Problem Description:** Help text for lsckdvol and lsfbvol commands shows columns that are not shown by DSCLI itself.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID# 347203

Improvements: Improvements for better usability

Allow SafeGuarded Copy target to be persistent

- 1. Problem Description:** For GDPS environments, support is added to allow persistent SGC volumes.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Improvement
 - 4. Pervasive Problem:** No
- ID# 346529

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