

IBM System Storage - DS8900F Disk Storage

Microcode Bundle 89.30.68.0 Release Note Information

Release Date: May 31, 2022

VRMF Level Data Results:

VRMF level From:	New version - no previous releases
VRMF Level To:	89.30.68.0
Report for:	DS8900F

Code Bundle Contents

DS8900F Code Bundle Level	SEA or LMC Version:	DSCSI Client	Heat Map Transfer Utility	Storage Manager	Copy Services Manager
89.30.68.0	7.9.30.154	7.9.30.154	7.9.30.154	5.9.30.1074	6.3.2.1

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

At a glance:

- Machine type 5341 with a one-year warranty for models 993, 994, 996, 998, and E96
- IBM Storage Expert Care Service
- FlashCopy® onto Safeguarded source
- Client controlled code load
- GUI advanced volume creation
- Global Copy bandwidth accelerator
- Multiple Global Mirror sessions per logical storage subsystem (LSS)
- License machine code 9.3 is available for machine types 5331, 5332, 5333, and 5334, models 993, 994, 996, and 998, as an upgrade option.
- 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.

TCT migration to cloud may fail silently

- 1 Problem Description:** Cloud migration over a degraded network connection, may expose a timing window where the object was not migrated, but the operation completed with good status.
- 2 Potential Impact of Problem:** loss of data
- 3 Environment:** Systems running TCT
- 4 Problem Severity:** High Impact
- 5 Pervasive Problem:** No

ID# 356928

Inconsistent data may exist on Safeguarded Copy recovery volume(s)

- 1 Problem Description:** <https://www.ibm.com/support/pages/node/6573169>
- 2 Potential Impact of Problem:** loss of data
- 3 Environment:** R9.2 SP1.3 and SP1.4 systems running Safeguarded Copy
- 4 Problem Severity:** High Impact
- 5 Pervasive Problem:** No

ID# 357988

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

Host Adapter port failed to log back into SAN

- 1 Problem Description:** In conditions where a Host Adapter port is bouncing, the port may fail to log back into the SAN fabric.
- 2 Potential Impact of Problem:** Loss of access
- 3 Environment:** DS8900F Running R9.2 bundles
- 4 Problem Severity:** High Impact
- 5 Pervasive Problem:** No

ID# 355682

Shutdown while installing a new I/O enclosure pair

- 1 Problem Description:** Enclosure install process failed, leaving the enclosures partially installed. While attempting reinstall, the system saw both enclosures in the pair were unavailable, and performed an emergency shutdown.
- 2 Potential Impact of Problem:** Loss of access
- 3 Environment:** Failed I/O enclosure pair MES
- 4 Problem Severity:** High Impact
- 5 Pervasive Problem:** No

ID# 356268, 356279

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Potential System Z loss of access on R9.2 code

- 1 Problem Description:** The Asynchronous Status Exchange counter is not properly decremented when asynchronous status events are aborted.
- 2 Potential Impact of Problem:** loss of access
- 3 Environment:** System Z hosts on R9.2
- 4 Problem Severity:** High Impact
- 5 Pervasive Problem:** No

ID# 356779

Repeated 0x7410 MLE and dual reboot during TCT recall or restore

- 1 Problem Description:** Transparent Cloud Tiering recall or restore of datasets from TS7700, to volumes in a PPRC relationship, may encounter repeated warmstarts, leading to dual-cluster IML.
- 2 Potential Impact of Problem:** loss of access
- 3 Environment:** Systems running TCT with PPRC
- 4 Problem Severity:** High Impact
- 5 Pervasive Problem:** No

ID# 357237

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

DS CLI client install failure on Windows 2019 Server

- 1 Problem Description:** Changes in Windows 2019 Server require an updated version of Install Anywhere software.
- 2 Potential Impact of Problem:** DS CLI install failure
- 3 Environment:** DS CLI below 7.9.30.154, and Windows 2019 Server.
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** Yes

ID# 352995

0x4775 MLE

- 1 Problem Description:** Two copy services threads were running in parallel, and out-of-order. The second thread finished first, and freed the Task Control Block, leaving the first thread stranded.
- 2 Potential Impact of Problem:** Warmstart
- 3 Environment:** Systems running PPRC.
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 354123

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I/O enclosure removal failure

- 1 Problem Description:** I/O enclosures installed in the wrong locations, could not be removed without manual intervention.
- 2 Potential Impact of Problem:** Extended service action
- 3 Environment:** I/O enclosure upgrade and \geq R8.3 GA
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 355419

Transparent Cloud Tiering stalled

- 1 Problem Description:** High ReST API request activity can lead to Java out-of- memory errors.
- 2 Potential Impact of Problem:** TCT Stall
- 3 Environment:** TCT using out-of-band communication path
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** Yes

ID# 355658

Unexpected SGC Rolloff during backup cycle

- 1 Problem Description:** When increasing Safeguarded Copy capacity multiplier to ≥ 5 , an internal flag was not reset.
- 2 Potential Impact of Problem:** Unexpected SGC behavior
- 3 Environment:** SGC volume expansion support, \geq R9.1 GA.
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 355724

Expansion frame install failed

- 1 Problem Description:** Expansion frame iPDU install process fails if the base frame has only one iPDU pair.
- 2 Potential Impact of Problem:** Extended service action
- 3 Environment:** Expansion frame install, and \geq R9.1 SP2
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** Yes

ID# 355972

Safeguarded Copy performance enhancement

- 1 Problem Description:** Implement a new Optimization Bitmap to improve performance while performing SGC Recover operations.
- 2 Potential Impact of Problem:** Degraded performance
- 3 Environment:** Creating SGC recovery volume(s)
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 356293

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License key file missing on one LPAR

- 1 Problem Description:** Code update suspended because of a LIC feature miscompare
- 2 Potential Impact of Problem:** Extended service action
- 3 Environment:** Base code, discovered by CDA process
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 356443

0x4143 Command reset task timeout

- 1 Problem Description:** Copy source to target deadlock while waiting for metadata invalidation to complete.
- 2 Potential Impact of Problem:** Warmstarts. PPRC suspend
- 3 Environment:** Systems running PPRC
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** Yes

ID# 356488

SGC recover fails with RC=08

- 1 Problem Description:** When a FlashCopy source volume is also a Safeguarded copy source, a FLC withdraw command, using background copy, will incorrectly also perform BGC on the SGC relationship. SGC recover cannot run until the BGC completes.
- 2 Potential Impact of Problem:** SGC recover command fails
- 3 Environment:** Safeguarded Copy with FlashCopy from the same source.
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 356572

Lock contention with high transaction write workloads

- 1 Problem Description:** PPRC volumes with high transaction write workloads may encounter Remote Unit Address Control Block lock contention, caused by improper use of locking functions.
- 2 Potential Impact of Problem:** Degraded performance
- 3 Environment:** Systems running PPRC
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 356692

Improve error text for SAN-based serviceable events

- 1 Problem Description:** Provide clearer explanation of error events, such as CRC, BER Exceeded, Loss of Sync, Loss of Signal. Such errors are reported by the DS8K, but are usually caused by external SAN problems.
- 2 Potential Impact of Problem:** Loss of path
- 3 Environment:** Customer SAN
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** Yes

ID# 356719

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0x1C63 MLE during LIC bundle upgrade

- 1 Problem Description:** Timing window exists while one LPAR is upgraded, where a space release operation may fail with "try later" sense, resulting in a microcode logic error.
- 2 Potential Impact of Problem:** Warmstart,
- 3 Environment:** R9.0, R9.1 upgrade to R9.2
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 356725

LDAP user login with no access

- 1 Problem Description:** Ungrouped users with Administrator role do not have administrator access (First-time data capture)
- 2 Potential Impact of Problem:** Unable to perform admin tasks
- 3 Environment:** R9.x native LDAP, ungrouped users
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 356810

Update Apache Log4j to address CVE-2021-44228

- 1 Problem Description:** Log4j updated to version 17.1
- 2 Potential Impact of Problem:** Security vulnerability
- 3 Environment:** All
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** Yes

ID# 356891

CSM lost access to Global Mirror session

- 1 Problem Description:** The last volume in the LSS serving as GM Master was deleted. Fix will prevent removal of the last device in an LSS, if the LSS is serving as GM Master.
- 2 Potential Impact of Problem:** Loss CSM communication
- 3 Environment:** Systems running Global Mirror
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 357038

Single LPAR Data Storage Interrupt /reboot

- 1 Problem Description:** A FlashCopy extent checking task was locked, then moved to another list. A second process then acted on the Task Control Block without taking the lock, exposing the TCB to corruption during a narrow window of time.
- 2 Potential Impact of Problem:** Degraded performance
- 3 Environment:** Systems using FlashCopy
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 357074

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Incorrect Global Mirror session values in GUI

- 1 Problem Description:** Query of GM session information is only working on sessions having an even-numbered master LSS. DS CLI queries are not affected, and will produce the correct output.
 - 2 Potential Impact of Problem:** Inconsistent GUI reporting
 - 3 Environment:** Systems running Global Mirror
 - 4 Problem Severity:** Moderate
 - 5 Pervasive Problem:** No
- ID# 357147

0x4143 MLE during TCT restore

- 1 Problem Description:** When performing Transparent Cloud Tiering recall or restore, Global Mirror collisions are not handled properly.
 - 2 Potential Impact of Problem:** Warmstart
 - 3 Environment:** Systems running TCT with Global Mirror
 - 4 Problem Severity:** Moderate
 - 5 Pervasive Problem:** No
- ID# 357240

TCT failed after LIC bundle upgrade to R9.2

- 1 Problem Description:** In R9.2, with multicloud support, all clouds must have their names in lowercase. Existing clouds with upper or mixed case names, must be recreated with lowercase.
 - 2 Potential Impact of Problem:** Loss of TCT function
 - 3 Environment:** Systems running TCT on R9.2 or higher
 - 4 Problem Severity:** Moderate
 - 5 Pervasive Problem:** Yes
- ID# 357494

Reduce copy services bitmap lock contention

- 1 Problem Description:** Reduce unnecessary calls for bitmap lock in copy services write intercept path
 - 2 Potential Impact of Problem:** Degraded performance
 - 3 Environment:** Systems running PPRC
 - 4 Problem Severity:** Moderate
 - 5 Pervasive Problem:** No
- ID# 357564

0x1C5A MLE while creating a new volume

- 1 Problem Description:** While a new volume was being created, an unrelated warmstart opened a timing window where an extent scan attempted to process the incomplete volume.
 - 2 Potential Impact of Problem:** Repeated Warmstart, single LPAR reboot
 - 3 Environment:** R9.2 and standard volume creation
 - 4 Problem Severity:** Moderate
 - 5 Pervasive Problem:** No
- ID# 357675

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Full copy when converting MGM to multi-target MM/GM

- 1 Problem Description:** When converting from cascaded to multi-target PPRC using Force Failback, the Update Secondary process initialized the OutOfSync bitmaps.
- 2 Potential Impact of Problem:** Full copy to secondary
- 3 Environment:** PPRC and R9.2 SP1.x
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 357676

0x15E5 MLE while creating SGC recovery volumes

- 1 Problem Description:** During Safeguarded Copy recover operation, a bitmap metadata segment was populated without obtaining a lock
- 2 Potential Impact of Problem:** Warmstart
- 3 Environment:** Systems running R9.2 and Safeguarded Copy
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 357911

Back out a locking change

- 1 Problem Description:** In ID# 349736, a locking change was made to improve performance, but this change has unintended side-effects in PPRC workloads with high write activity.
- 2 Potential Impact of Problem:** Degraded performance
- 3 Environment:** R9.1 SP3 and R9.2 systems running PPRC
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 358023

CPC dual hard drive reload failure

- 1 Problem Description:** Process to reload CPC hard drives from HMC failed to correctly identify the LPAR MAC addresses
- 2 Potential Impact of Problem:** Extended service action
- 3 Environment:** Systems running R9.2
- 4 Problem Severity:** Moderate
- 5 Pervasive Problem:** No

ID# 358271

Service: A recoverable error, Service improvements

Incorrect storage facility capacity shown in REST API

- 1 Problem Description:** Capacity was calculated using MiB factor, instead of MB.
- 2 Potential Impact of Problem:** Incorrect reporting
- 3 Environment:** REST API
- 4 Problem Severity:** Service
- 5 Pervasive Problem:** No

ID# 356383

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Storage enclosure ESM repair required next level assistance

- 1 Problem Description:** Enclosure services module repair requires both VRAID adapters in the pair to be online, but the failure caused one VRAID adapter to be fenced.
 - 2 Potential Impact of Problem:** Extended service action
 - 3 Environment:** High Performance Flash Enclosure Gen2
 - 4 Problem Severity:** Service
 - 5 Pervasive Problem:** No
- ID# 356650, 356658

Managed system connections lost after internal IP change

- 1 Problem Description:** HMC1 was unable to communicate over the service processor connections to the CPCs
 - 2 Potential Impact of Problem:** Extended service action
 - 3 Environment:** Systems running R9.2 SP1
 - 4 Problem Severity:** Service
 - 5 Pervasive Problem:** No
- ID# 357867

Improvements: Improvements for better usability

Improve SCSI-PR3 Compliance

- 1 Problem Description:** Add Read Full Status action support for the SCSI Persistent Reserve In (5E) command.
 - 2 Potential Impact of Problem:** None
 - 3 Environment:** SCSI-FCP hosts
 - 4 Problem Severity:** Improvement
 - 5 Pervasive Problem:** No
- ID# 356553

Improve first-time data capture

- 1 Problem Description:** Add long i/o traces to default PE package data collection
 - 2 Potential Impact of Problem:** None
 - 3 Environment:** All
 - 4 Problem Severity:** Improvement
 - 5 Pervasive Problem:** No
- ID# 356924

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