

# IBM System Storage - DS8900F Disk Storage

## Microcode Bundle 89.10.92.0 Release Note Information v1.2

Release Date: October 20, 2020

### VRMF Level Data Results:

<b>VRMF level From:</b>	New version - no previous releases
<b>VRMF Level To:</b>	89.10.92.0
<b>Report for:</b>	DS8900F

### Code Bundle Contents

DS8900F Code Bundle Level	SEA or LMC Version:	DSCSI Client	Heat Map Transfer Utility	Storage Manager	Copy Services Manager
89.10.92.0	7.9.10.275	7.9.10.275	7.9.10.275	5.9.10.1093	6.2.9.1

Overview of new features and functions supported by this release on DS8900F 533x models 993/994/996

### At a glance:

- Dynamic expansion of SafeGuarded Copy backup capacity
- Space release support for devices protected by IBM SafeGuarded Copy
- 70% more system memory in IBM DS8950F to increase cache hit ratio and improve workload consolidation
- 1.92 TB high-capacity Flash Drive sets available for DS8950F models
- zHyperLink write support for Global Mirror primary devices
- Compression support for transparent cloud tiering with TS7700 as an object store
- Secure data transfer for transparent cloud tiering to TS7700 as an object store
- DFSMSdss full volume dump support for transparent cloud tiering
- DS8910F Model 993 integration with IBM z15™ (Model T02) and LinuxONE III (Model LT2)
- Native LDAP for HMC remote authentication
- Remote auto-download of recommended Code Bundles
- 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.**

#### **Healthcheck SRC=BE33CEE1 callhome**

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

#### **0x10F7 MLE during array rebuild**

1. **Problem Description:** During array rebuild, track recovery was unable to completely restore an unreadable track from the copy in cache.
2. **Potential Impact of Problem:** loss of data
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 346492

#### **HIPER Inconsistent data on secondary after error recovery**

1. **Problem Description:** Error recovery in DS8000 during Metro Mirror or FlashCopy Consistency Group formation, and with multiple LSSs in the consistency group, may result in one or more LSSs coming out of freeze earlier than the others.
2. **Potential Impact of Problem:** Data inconsistency
3. **Problem Severity:** HIPER
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

#### **Inconsistent data on secondary after error recovery**

1. **Problem Description:** Error recovery while forming PPRC Consistency Groups, across multiple LSSs, may result in one or more LSSs coming out of freeze earlier than the others.
2. **Potential Impact of Problem:** Data inconsistency
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 348783

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### **Pinned non-retryable data in cache after cluster failover**

1. **Problem Description:** During failover, a narrow window exists where a task control block for a format write operation was not processed.
2. **Potential Impact of Problem:** loss of data
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 348842

### **Pinned data after power loss**

1. **Problem Description:** During IML with modified data, an exposure exists where a previously queued commit may not be restored to cache.
2. **Potential Impact of Problem:** loss of data
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 350519

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

### **Last Device Adapter fenced**

1. **Problem Description:** A microcode logic error during adapter recovery caused the only available adapter to be fenced.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 341982

### **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

### **I/O adapter failure caused multiple warmstarts**

1. **Problem Description:** PCIe error recovery did not recognize that the adapter was presenting power fault
2. **Potential Impact of Problem:** Multiple warmstarts
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 345611

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **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

### **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

### **Data inaccessible exposure after input power failure**

1. **Problem Description:** If Rack 1 loses power ~6 seconds before Rack 2, some ranks may require manual intervention once power is restored.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 346582

### **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

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **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

### **NVDIMMs deconfigured after power failure**

1. **Problem Description:** After a hard power off, a p9 firmware problem caused NVDIMMs to be deconfigured.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 347579

### **Repeated warmstarts and LPAR reboot**

1. **Problem Description:** Device Adapter MLE processing invalid failed track logs led to repeated warmstarts, and reboot of both clusters.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 349270

### **0x0632 MLE and cluster failover**

1. **Problem Description:** A microcode logic error was encountered while converting a Global Copy primary relation with change recording, to MetroMirror and start Incremental Resync.
2. **Potential Impact of Problem:** Warmstarts, cluster failover, Possible loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 349654

### **FB background task timed out**

1. **Problem Description:** I/O bay PCIe issues led to I/O timeout after waiting 5 minutes for a SCSI Command to complete.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 349671

### **0x1024 MLE and dual reboot**

1. **Problem Description:** When expanding a large extents volume that does not end on an extent boundary, and had been migrated from a different geometry, the first and last track information for the last extent may be mis-calculated.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 349898

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## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **Multiple 32Gb Host Adapters fenced**

1. **Problem Description:** zHPF Format Write with an irregular track format was mis-handled by the HA firmware. Only 32Gb adapters are susceptible to this condition.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 349936

### **Potential Loss of Access using DB2 System Backup Restore utility with Preserve Mirror**

1. **Problem Description:** <https://www.ibm.com/support/pages/node/6253915>
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 350053

### **TCT Recall fails with Invalid Track Number**

1. **Problem Description:** Transparent Cloud Tiering Recall task that spans multiple volumes may fail because a microcode logic error handling parallel recall threads.
2. **Potential Impact of Problem:** Recall job failure
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID# 350598

### **HIPER HyperSwap may fail in a Cascaded Metro Global Mirror environment managed by CSM**

1. **Problem Description:** <https://www.ibm.com/support/pages/node/6259481>
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** HIPER
4. **Pervasive Problem:** No

ID# 350674

**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 (APOM) 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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### **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

### **0x2475 MLE**

1. **Problem Description:** A PRSD request (Prepare for Read Subsystem Data) exposed a small MLE window in Global Mirror exclusive access flag processing.
2. **Potential Impact of Problem:** Warmstart
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 341749

### **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

### **0x7003 MLE**

1. **Problem Description:** With PPRC paths in a High Failure Rate condition, a data mover task was failed, while another completed with success. A microcode logic error led to reporting an illegal status combination.
2. **Potential Impact of Problem:** Warmstart
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 343404

### **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

### **Slow throughput running Transparent Cloud Tiering**

1. **Problem Description:** Insufficient threading for TCT implementations with low per-thread bandwidth.
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 344422

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### **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

### **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

### **XRC Suspend**

1. **Problem Description:** No Record Found, or Invalid Track Format on XRC secondary, when using Remote Pair FlashCopy and/or XRC. A track update was not sent to the secondary because of improper sidefile processing.
2. **Potential Impact of Problem:** XRC Suspend
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 345644

### **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

### **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



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## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **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

### **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

### **FB task timeouts after cluster hardware failover**

1. **Problem Description:** After a sudden cluster down failure, PCIe error recovery may take longer than expected.
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 346864

### **PPRC path inoperative after a FC link event**

1. **Problem Description:** Link recovery on a PPRC path led to a Destination ID (D\_ID) change in the Host Adapter port, but the old D\_ID also remained, creating a duplicate entry. Condition requires manual intervention to restore the path.
2. **Potential Impact of Problem:** loss of path
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** Yes

ID# 346912

### **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

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **I/O timeouts during V-RAID recovery**

1. **Problem Description:** Array takeover after VRA failure was stalled by the secondary failure of a Flash Drive.
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 347080

### **Stuck FlashCopy relation using BackGround Copy**

1. **Problem Description:** When BGC is started and the first tracks of the target are not allocated, a timing window exists where BGC may start repeatedly on the same rank, but never move on to the next rank.
2. **Potential Impact of Problem:** FlashCopy failure
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 347081

### **EasyTier rebalance halt within the same Device Adapter pair**

1. **Problem Description:** EasyTier does not rebalance when DA pairs are near full bandwidth utilization, even when source and target are within the same DA pair. Fix will allow rebalance within a DA pair, as this does not add to overall DA pair utilization
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 347175

### **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

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **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

### **FlashCopy performance degradation**

1. **Problem Description:** In large configurations with heavy FlashCopy usage, the system may run out of journal resources.
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 347611

### **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

### **FlashCopy performance degradation with Type 2 Change Recording**

1. **Problem Description:** Requests for task control blocks to set Change Recording bits were being held up
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 347782

### **FlashCopy performance degradation**

1. **Problem Description:** Lock contention for In-Memory Relation Table resources while copying large volumes, or a source to two targets.
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 347783

### **Slow cluster hard drive**

1. **Problem Description:** A failing, but still operational, cluster hard drive caused performance impact, and cluster failover
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 347791

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **FB 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

### **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

### **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

### **0x7EA8 MLE running SafeGuarded Copy**

1. **Problem Description:** During check-in, an error recovery event may cause the track counter to roll backward and go negative, resulting in a Microcode Logic Error.
2. **Potential Impact of Problem:** SafeGuarded Copy failure
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 348074

### **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

# **IBM System Storage - DS8900F Disk Storage**

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### **Read response times elongated by cross-cluster FlashCopy**

1. **Problem Description:** While XC FlashCopy will consume more resources, multiple locking inefficiencies were found to be contributing to the problem.
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 348371

### **SafeGuarded Copy Thaw while check-in is still running**

1. **Problem Description:** SGC implementations not under Copy Services Manager control may exceed the check-in default timeout.
2. **Potential Impact of Problem:** SafeGuarded Copy Failure
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 348513

### **Elongated NVS wait queue times**

1. **Problem Description:** Multiple QuickInit metadata destages for the same track are not being grouped into a single operation.
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 348729

### **p9 Server firmware update did not complete in the time allowed**

1. **Problem Description:** NVDIMM firmware update adds ~60 minutes to the overall firmware update, causing the process to exceed the time allowed for completion.
2. **Potential Impact of Problem:** CDA suspend
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** Yes

ID# 349010

### **XRC suspend during cluster failback to dual**

1. **Problem Description:** If Remote Pair FlashCopy or XRC establish or withdraw occurs during a cluster failback, the session will suspend.
2. **Potential Impact of Problem:** XRC suspend
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 349025

### **0x110A MLE**

1. **Problem Description:** Device Adapter failover timed out waiting for a Task Control Block.
2. **Potential Impact of Problem:** Warmstart
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 349140

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### **0x1159 MLE**

1. **Problem Description:** Release Space is being called before I/O is fully quiesced for the extent
  2. **Potential Impact of Problem:** Warmstart
  3. **Problem Severity:** Moderate
  4. **Pervasive Problem:** No
- ID# 349185

### **Global Mirror commit failed**

1. **Problem Description:** GM commit failed, and pairs suspended, when a FlashCopy relation was incorrectly removed. Fix will allow GM to finish committing as many copies as possible.
  2. **Potential Impact of Problem:** GM suspend
  3. **Problem Severity:** Moderate
  4. **Pervasive Problem:** No
- ID# 349269

### **0x1C12 MLE during Flash Drive replacement**

1. **Problem Description:** Process to remove the config of the old drive collided with the process to harvest the information from the new one.
  2. **Potential Impact of Problem:** Warmstart and LPAR failover
  3. **Problem Severity:** Moderate
  4. **Pervasive Problem:** No
- ID# 349355

### **Resource Managers hung on LPAR**

1. **Problem Description:** Unable to query or stop/start RMs, or quiesce/resume the LPAR, because of a deadlock between a volume delete command, and a query operation.
  2. **Potential Impact of Problem:** DSCLI command failure
  3. **Problem Severity:** Moderate
  4. **Pervasive Problem:** No
- ID# 349388

### **0x7D0A MLE**

1. **Problem Description:** Preserve Mirror FlashCopy command required a large buffer, so a new Task Control Block was allocated to send the command to the secondary. But the calling function could not handle a callback to the new TCB, and triggered a Microcode Logic Error
  2. **Potential Impact of Problem:** Warmstart
  3. **Problem Severity:** Moderate
  4. **Pervasive Problem:** No
- ID# 349420

### **Remote Pair FlashCopy failure**

1. **Problem Description:** On a FlashCopy establish with multiple extents requested, the command parameter size exceeded the 8-bit integer value.
  2. **Potential Impact of Problem:** FlashCopy failure
  3. **Problem Severity:** Moderate
  4. **Pervasive Problem:** No
- ID# 349522

# **IBM System Storage - DS8900F Disk Storage**

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### **0x1D02 MLE running SafeGuarded Copy**

1. **Problem Description:** During SGC rolloff, the Device Adapter encountered an extent with an unexpected (but legal) size.
2. **Potential Impact of Problem:** Warmstart
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 349635

### **False 0x2031 MLE**

1. **Problem Description:** Microcode Logic Error was triggered by a condition other than what it was designed to recover from.
2. **Potential Impact of Problem:** Warmstart
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No

ID# 350506

## **Service: A recoverable error, Service improvements.**

### **0x7D0E MLE running XRC or Concurrent Copy on VM with minidisks**

1. **Problem Description:** Code attempted to free a lock that was already freed.
2. **Potential Impact of Problem:** ODD Dump (88.11.45.0 and later)
3. **Problem Severity:** Service
4. **Pervasive Problem:** Yes

ID# 324851

### **DS GUI display issue using Multi-Target Incremental FlashCopy**

1. **Problem Description:** When FlashCopy pairs are designated as Multi-Incremental (Type 2), the DS GUI table does not show anything in the "Recording" column. FlashCopy Properties display, and DSCLI, are not affected.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 334418

### **0x01B7:506A MLE**

1. **Problem Description:** Metadata lock contention on Metro Mirror secondary when it is also a Global Copy or Multi-Target Incremental Resync primary.
2. **Potential Impact of Problem:** ODD dump
3. **Problem Severity:** Service
4. **Pervasive Problem:** Yes

ID# 337694

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **0x01B7:1006 MLE**

1. **Problem Description:** A segment pool function is holding a thread longer than allowed.
2. **Potential Impact of Problem:** ODD dump
3. **Problem Severity:** Service
4. **Pervasive Problem:** Yes

ID# 338996

### **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

### **0x7E3A MLE with Global Mirror FlashCopy**

1. **Problem Description:** Extent-Space-Efficient space release during background copy encountered a microcode logic error.
2. **Potential Impact of Problem:** ODD Dump
3. **Problem Severity:** Service
4. **Pervasive Problem:** Yes

ID# 341999

### **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

### **0x01B7:3043 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

### **Ambiguous HyperSwap failure sense**

1. **Problem Description:** In a HyperSwap "go to sync" failure, the sense needs an additional qualifier to clarify the reason for the failure.
2. **Potential Impact of Problem:** Extended problem determination
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 345088



# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **DS GUI export incomplete**

1. **Problem Description:** Current GUI Export System Summary function does not provide all the information that the previous GUI export provided. But previous GUI export may not provide reliable information.
2. **Potential Impact of Problem:** Incorrect exported information
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 345308

### **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

### **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

### **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

### **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

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **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 lscdvol 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

### **0xB049 MLE**

1. **Problem Description:** Read Diagnostic Parameter scan flag was set in the Host Adapter port, but RDP sequence never arrived.
  2. **Potential Impact of Problem:** ODD dump
  3. **Problem Severity:** Service
  4. **Pervasive Problem:** No
- ID# 347205

### **Private network IP range change fails with peer node offline**

1. **Problem Description:** Process to re-establish peer node communication can fail because of intermittent network issues. Fix changes the process to a more resilient method.
  2. **Potential Impact of Problem:** Extended service procedure
  3. **Problem Severity:** Service
  4. **Pervasive Problem:** No
- ID# 347535

### **Incorrect attribute name in REST response**

1. **Problem Description:** In PPRC query response, attribute "name" was used, rather than "ID".
  2. **Potential Impact of Problem:** none
  3. **Problem Severity:** Service
  4. **Pervasive Problem:** No
- ID# 347769

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **Change DS GUI column names**

1. **Problem Description:** Rename Mirroring and FlashCopy table columns
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 347801

### **Read/Write counters are incorrectly reporting usage**

1. **Problem Description:** Interval counters may under-report sequential R/W activity
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 347829

### **Change of internal address range caused code upgrade failure**

1. **Problem Description:** While CDA preload was active, the internal networks were changed to an alternate address range. Subsequent code activation reverted the change on the internal servers.
2. **Potential Impact of Problem:** Extended service action
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 347854

### **HMC code update failure**

1. **Problem Description:** HMC failed to function after code update, because a required function was not updated.
2. **Potential Impact of Problem:** Extended code update activity
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 347978

### **EasyTier shows incorrect capacity**

1. **Problem Description:** For CKD, EasyTier raw data are reported in MB units, while GUI and export tool are showing the same in cylinder units.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 348054

### **HMC login hang**

1. **Problem Description:** Login hangs after accepting the password containing the "%" character.
2. **Potential Impact of Problem:** Unable to login
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 348090

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **AOS config panel display incorrect**

1. **Problem Description:** AssistOnSite config panel displays incorrectly when authenticated proxy is configured with a password containing "@".
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 348208

### **mkarray failed with CMUN02013E**

1. **Problem Description:** In device adapter pairs with an intermix of drive capacities and speeds, an array site may become intermixed because of prior failures and subsequent repair actions. If an intermixed array is removed, the intermix condition may prevent reconfiguring the array.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 348279

### **HMC WUI failed to start up**

1. **Problem Description:** During HMC reboot, functional code failed to initialize because WUI attempted to start up prematurely.
2. **Potential Impact of Problem:** Additional reboot
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 348348

### **HMC heartbeat callhome triggers SNMP alert**

1. **Problem Description:** If SNMP is configured for Trap 3 notifications, after the next HMC reboot, SNMP will begin also reporting Trap 13 events.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 348520

### **HMC Hardware API fails to start**

1. **Problem Description:** If resource manager query returns rack2 objects first, HW API may fail to start.
2. **Potential Impact of Problem:** Unable to login to HMC
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 348614

### **HMC WUI fails CE and Customer login**

1. **Problem Description:** CE or Customer login returned "Invalid user name or password specified" because of a Pluggable Authentication Module (PAM) failure.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 348649

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **NTP server config missing after HMC update**

1. **Problem Description:** Function to remove default public NTP servers can also remove Customer-configured public NTP servers.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 348834

### **Flash Drives rejected for SAS path errors**

1. **Problem Description:** Flash drives were incorrectly rejected for SAS path errors that were affecting multiple drives.
2. **Potential Impact of Problem:** Extended service actions
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 348994

### **Flash drive errors not cleared during repair**

1. **Problem Description:** HPFE drive error counts are preserved through the replacement process, when the same drive is still in the enclosure.
2. **Potential Impact of Problem:** Drive pseudo-repair fails
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 349062

### **HMC filesystem full**

1. **Problem Description:** Rack Power Control traces were being logged in two places.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 349075

### **Non-Contiguous volume creation fails**

1. **Problem Description:** Creating volumes fails if two ranges are specified with a gap between them.
2. **Potential Impact of Problem:** Multiple creation actions required
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 349080

### **Closed serviceable event reappeared after an hour**

1. **Problem Description:** CDA Preload Manager process got into a deadlock trying to display "Preload complete" message to a user session that should not be receiving it.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 349130

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **LPARs logging 'Cluster Failure' messages**

1. **Problem Description:** LPAR - HMC management heartbeats failing after internal private network IP range was changed.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 349188

### **0x01B7:1000 MLE**

1. **Problem Description:** During 'stage grouping' on cascaded FlashCopy target, the thread may exceed the timeout limit.
2. **Potential Impact of Problem:** ODD dump
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 349225

### **RemotePathStateChanged message incomplete**

1. **Problem Description:** Status message should display 9 fields for PPRC path status, but only 8 are shown.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 349226

### **HMC network description settings lost**

1. **Problem Description:** During private network IP range change procedure, a persistent information file was removed.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 349227

### **Transparent Cloud Tiering time out with no error message**

1. **Problem Description:** When an abort is received, TCT waits for the pipe to empty before posting a message
2. **Potential Impact of Problem:** ODD Dump
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 349337

### **SDO does not report failed HPFE drives**

1. **Problem Description:** Secure Data Overwrite is reporting SDO Complete, even when HPFE drives are failed.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 349519

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **SCSI DISK ERR5 messages on AIX host**

1. **Problem Description:** When performing a write same unmap command, DS8K does not receive a data block from the host before starting the unmap.
2. **Potential Impact of Problem:** Host errors
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 349562

### **Enclosure Service Module repair failure**

1. **Problem Description:** HPFE Gen2 ESM repair failed because a prior recovery left the adapter device busses in a quiesced state.
2. **Potential Impact of Problem:** Extended repair action
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 349576

### **Excessive metadata pre-stage activity**

1. **Problem Description:** On PPRC primary, a flag is not being cleared after every valid metadata pre-stage.
2. **Potential Impact of Problem:** Unnecessary work being done
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 350070

### **False SRC=BE34002B 'Out of Spares' condition**

1. **Problem Description:** A function to query predicted capacity was left open, each time it was run. Eventually enough resources were consumed, to the degree that Resource Manager functions began to fail.
2. **Potential Impact of Problem:** Resource Management failure
3. **Problem Severity:** Service
4. **Pervasive Problem:** No

ID# 350490

## **Improvements: Improvements for better usability**

### **Add periodic midplane VPD validation**

1. **Problem Description:** If Vital Product Data are corrupted or unreadable, scrub routines will detect and rewrite the VPD.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Improvement
4. **Pervasive Problem:** No

ID# 340870

# **IBM System Storage - DS8900F Disk Storage**

## **Microcode Bundle 89.10.92.0 Release Note Information v1.2**

### **Improve accuracy of DS GUI performance graph**

1. **Problem Description:** Add Read Physical Disconnect Time and Write Physical Disconnect time to Device Performance Statistics.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Improvement
4. **Pervasive Problem:** No

ID# 346042

### **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

### **Enhance host health checking on secondary volumes**

1. **Problem Description:** Allow FICON Read Accessibility Mask (RAM) command to a secondary device
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Improvement
4. **Pervasive Problem:** No

ID# 349826

### **Improve storage enclosure cable check**

1. **Problem Description:** Storage enclosure mis-cabling during field install
2. **Potential Impact of Problem:** Extended install duration
3. **Problem Severity:** Improvement
4. **Pervasive Problem:** No

ID# 349842



# **IBM System Storage - DS8900F Disk Storage**

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