IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

Release Date: August 20, 2021

VRMF Level Data Results:

VRMF level From:	New version - no previous releases
VRMF Level To:	89.20.147.0
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
89.20.147.0	7.9.20.477	7.9.20.477	7.9.20.477	5.9.20.1169	6.3.0

Overview of new features and functions supported by this release on DS8900F 533x models 993/994/996/998

At a glance:

- DS8980F analytic-class Model 998
- Volume-level performance reporting
- Safeguarded Copy restore to production
- Consistent read from Metro Mirror secondary
- Fibre Channel connectivity report
- Encryption without key servers (local encryption)
- Unmap command for IBM i
- Expandable to 2 TB and 3.4 TB cache (for existing 996)
- Transparent cloud tiering multicloud support
- Automatic code bundle acquire and preload (disabled by default)
- 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

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

Acute: An irrecoverable error with potential loss of data.

HIPER Potential DS8900F Data Loss during a system power outage
1   **Problem Description:** https://www.ibm.com/support/pages/node/6415607
2   **Potential Impact of Problem:** loss of data
3   **Problem Severity:** HIPER
4   **Pervasive Problem:** No
ID# 350299

Potential out-of-sync bitmap corruption
1   **Problem Description:** During a PPRC failback, with 'Force', the Out-of-Sync bitmaps from the (old primary) secondary may not be properly merged with those in the (new) primary.
2   **Potential Impact of Problem:** Inconsistent data
3   **Problem Severity:** High Impact
4   **Pervasive Problem:** No
ID# 351566

SafeGuarded Copy volume stuck in Rolloff state
1   **Problem Description:** After an error recovery event during SGC Rolloff, SGC consistency group formation fails with "try later" sense.
2   **Potential Impact of Problem:** Loss of SafeGuarded Backup
3   **Problem Severity:** High Impact
4   **Pervasive Problem:** No
ID# 353027

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

HIPER Global CRC error caused multiple Host Adapters fenced
1   **Problem Description:** FICON global CRC errors may lead to fencing the last path to data
2   **Potential Impact of Problem:** loss of access
3   **Problem Severity:** HIPER
4   **Pervasive Problem:** Yes
ID# 345204

Incorrect IEA497I message issued
1   **Problem Description:** An Invalid Track Format error was mis-reported as invalid Device Control Word error.
2   **Potential Impact of Problem:** Unplanned HyperSwap
3   **Problem Severity:** High Impact
4   **Pervasive Problem:** No
ID# 351060

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

Loss of access exposure running ESE Sizing Tool
1 **Problem Description:** If an LPAR is running the ESE Sizing Tool, and has a failure, the partner LPAR would be unable to take over, and would also fail. Once the system is recovered, copy services relations would have to be reconfigured. Exposure was discovered in code review.
2 **Potential Impact of Problem:** loss of access, loss of replication
3 **Problem Severity:** High Impact
4 **Pervasive Problem:** No
ID# 351682

MGM session would not start after site swap
1 **Problem Description:** Metro-Global-Mirror start H1-H2-H3 failed because of incorrect Out-of-Sync track bitmaps.
2 **Potential Impact of Problem:** Replication failure
3 **Problem Severity:** High Impact
4 **Pervasive Problem:** No
ID# 351900

Flash Drive read/write timeout
1 **Problem Description:** SAS path recovery routines may temporarily remove the last operational path to the storage enclosure.
2 **Potential Impact of Problem:** loss of access
3 **Problem Severity:** High Impact
4 **Pervasive Problem:** No
ID# 352215

Loss of access caused by extended PCIe error recovery
1 **Problem Description:** CPC PCIe adapter hardware failure caused LPAR failover, and extended I/O enclosure PCIe recovery.
2 **Potential Impact of Problem:** loss of access
3 **Problem Severity:** High Impact
4 **Pervasive Problem:** No
ID# 352893

Repeated track ID mismatch, 0x4433 MLE, and Host Adapter fence
1 **Problem Description:** An unusual CKD command chain exposed a microcode logic error in Host Adapter code.
2 **Potential Impact of Problem:** loss of access
3 **Problem Severity:** High Impact
4 **Pervasive Problem:** No
ID# 353928

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

PPRC suspend or I/O error during Space Release
1 Problem Description: Error recovery while performing Space Release on a SafeGuarded Copy source, exposed a potential timing condition that can result in a deadlock.
2 Potential Impact of Problem: temporary loss of access
3 Problem Severity: High Impact
4 Pervasive Problem: No
ID# 354006

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

Excessive asynchronous status presentation
1 Problem Description: A flood of asynchronous status events may overwhelm the System Z channel subsystem.
2 Potential Impact of Problem: degraded performance
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 341922

0x01EF MLE while terminating SGC volume(s)
1 Problem Description: Terminating SafeGuarded Copy relations, that are still active, may result in a Microcode Logic Error.
2 Potential Impact of Problem: Warmstart
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 347908

Unable to restart failed CPC Processor and Memory upgrade
1 Problem Description: If one CPC was upgraded, and the second fails, it cannot be recovered to dual cluster without support assistance.
2 Potential Impact of Problem: Extended service action
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 347993

0x01B7:5083 MLE
1 Problem Description: Task timeout caused by excessive sidefile lock contention.
2 Potential Impact of Problem: ODD Dump
3 Problem Severity: Moderate
4 Pervasive Problem: Yes
ID# 349736

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

IEA491E PPRC Suspended
1 Problem Description: PPRC suspend after creation of new pairs, if the first I/O is a two-track (Torn Page) atomic write.
2 Potential Impact of Problem: PPRC suspend with freeze
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 350891

No callhome after I/O enclosure fenced
1 Problem Description: Hardware resource was fenced, but no serviceable event was created.
2 Potential Impact of Problem: degraded performance
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 351183

Host Adapter Header bad CRC
1 Problem Description: During an XRC read operation, the Host adapter detected an invalid Cache Record Control Block header.
2 Potential Impact of Problem: Warmstart
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 351247

Incorrect FRU call-out for PCIe link errors
1 Problem Description: Serviceable event called out a FRU that was not part of the error domain.
2 Potential Impact of Problem: Repeated service actions
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 351270

Poor TCT read performance
1 Problem Description: Slow Transparent Cloud Tiering reads when compression is enabled.
2 Potential Impact of Problem: degraded performance
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 351699

Repeated 0x20EC MLEs
1 Problem Description: During warmstart processing, a timing window exists where NVS and Cache SafeGuarded Copy metadata may end up out of sync.
2 Potential Impact of Problem: Warmstarts, single LPAR reboot
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 351750

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

Performance (RPO) Degradation
1 **Problem Description:** Potential performance degradation in systems with large number of CPUs, caused by bitmap locking contention.
2 **Potential Impact of Problem:** degraded performance
3 **Problem Severity:** Moderate
4 **Pervasive Problem:** No
ID# 351934

0x1C71 MLE
1 **Problem Description:** A #define of MAX Rank Segment Table global data tracks can be smaller than the actual number of supported tracks.
2 **Potential Impact of Problem:** Warmstart
3 **Problem Severity:** Moderate
4 **Pervasive Problem:** No
ID# 351974

Excessive state change processing
1 **Problem Description:** The Rank State Machine calls rank state change and volume state change notification code every time it runs, even when the rank state has not changed.
2 **Potential Impact of Problem:** degraded performance
3 **Problem Severity:** Moderate
4 **Pervasive Problem:** No
ID# 352173

I/O timeout while withdrawing FLC relation
1 **Problem Description:** While withdrawing an incremental FlashCopy relation with type 2 change recording, a write command to the Fixed Block source volume was delayed for ~10 seconds.
2 **Potential Impact of Problem:** degraded performance
3 **Problem Severity:** Moderate
4 **Pervasive Problem:** No
ID# 352226

I/O delays on some Linux hosts during microcode update
1 **Problem Description:** During Failover/Failback, and Host Adapter Fastload, systems with 16Gb and 32Gb adapters terminate the Fiber Channel exchange without sending an abort sequence.
2 **Potential Impact of Problem:** degraded performance
3 **Problem Severity:** Moderate
4 **Pervasive Problem:** No
ID# 352227

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

0x4433 MLE
1 Problem Description: End of Chain processing on an Extended Address Volume write operation encountered an arithmetic error.
2 Potential Impact of Problem: Warmstart
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 352273

0xB05B Host Adapter MLE on HAs using Secure Login/EDiF
1 Problem Description: After an Implicit Logout, the Host Adapter driver attempts to re-use a Security Association Index that the ASIC thinks is still in use.
2 Potential Impact of Problem: Warmstart
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 352338

0x014E MLE during LPAR quiesce
1 Problem Description: Quiesce was held up by a stuck Global Mirror session that had no copy sets.
2 Potential Impact of Problem: Warmstart, CDA suspend
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 352441

Unable to login to DS GUI
1 Problem Description: HMC was continually trying to communicate with a disconnected DS CLI session, causing the message router queue to become full.
2 Potential Impact of Problem: Login failure
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 352690

0x05E0 MLE
1 Problem Description: Device Adapter received a Task Control Block from Cache, that it was already working on.
2 Potential Impact of Problem: Warmstart
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 352770

Performance impact running mkflash from IBM i
1 Problem Description: Host I/O was impacted by large numbers of Unit Attentions (State Change Interrupts) sent to the host.
2 Potential Impact of Problem: degraded performance
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 352819

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

Transparent Cloud Tiering slowdown
1 Problem Description: Timeout duration for TCT sockets can impact overall copy job performance.
2 Potential Impact of Problem: degraded TCT performance
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 352830

Persistent FlashCopy NVS usage
1 Problem Description: When full copy has completed, persistent FlashCopy source volumes are still using NVS as if write data will still be sent to the target volume.
2 Potential Impact of Problem: degraded performance
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 352833

0x7F0E MLE
1 Problem Description: A status field in a Data Mover task control block was updated after the task control block had been freed.
2 Potential Impact of Problem: Warmstart
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 352851

0x790E MLE when removing a SafeGuarded Copy volume
1 Problem Description: When removing a fenced SGC volume, code is trying to update tables that no longer exist.
2 Potential Impact of Problem: Warmstart
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 352855

Write command to FLC target fails with I/O error
1 Problem Description: FlashCopy target returns write inhibit error on a read-only volume. New flag is being added to Sense Subsystem Data (SNSS) response, to notify the host that the volume is read-only.
2 Potential Impact of Problem: Unnecessary error recovery
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 352996

SRC BE1E2170 deadlock while performing SafeGuarded Copy
1 Problem Description: A task was holding an exclusive lock on a metadata track, while waiting in queue behind other tasks, that also needed access to that same metadata track.
2 Potential Impact of Problem: Warmstart
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 353029

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

Host Adapter 0xB03E MLE
1 Problem Description: Periodic test I/O was sent to a PPRC path that was in High Failure Rate state, but the port had been taken offline.
2 Potential Impact of Problem: Warmstart
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 353058

GM session shows as cascaded instead of Multi-Target
1 Problem Description: Attempt was made to create a MTIR pair where one already existed for the same volume pairs. This caused the original MTIR pairs to be set to cascaded.
2 Potential Impact of Problem: Full copy of data
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 353239

Enforce minimum SafeGuarded Copy multiplier value
1 Problem Description: Change SafeGuarded Copy minimum multiplier value to 1.5.
2 Potential Impact of Problem: SGC 'out of space' failure
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 353447

Global Copy/Global Mirror performance degraded
1 Problem Description: PPRC performance impacted by overly aggressive pre-staging of Customer data tracks.
2 Potential Impact of Problem: degraded performance
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 353463

SafeGuarded Copy roll-off does not send an event
1 Problem Description: Old SGC backups are being pruned without proper notification of SGC space constraints, and the resulting roll-off.
2 Potential Impact of Problem: Oldest backups removed without notification.
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 353482

Cross-Cluster DMA timeout during failback phase
1 Problem Description: A hard CPC failure can leave behind pointer corruption in the Cross-Cluster DMA engine
2 Potential Impact of Problem: Extended single-cluster recovery
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 353615

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

I/O enclosure failure led to single LPAR reboot
1 **Problem Description:** LPAR continued trying to send transfers to the partner LPAR, through the failed I/O enclosure.
2 **Potential Impact of Problem:** Warmstart, Single LPAR reboot
3 **Problem Severity:** Moderate
4 **Pervasive Problem:** No
ID# 353703

0x26D0 MLE
1 Problem Description: An out-of-space condition caused the write task to abort, but a child process had not yet finished it's work.
2 Potential Impact of Problem: Warmstart
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 353834

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 **Problem Severity:** Moderate
4 **Pervasive Problem:** No
ID# 354123

0x05E0 MLE
1 Problem Description: A data track was moved from the cache fast write list, to destage wait list, while safe data commit scan was attempting to destage the track.
2 Potential Impact of Problem: Warmstart
3 Problem Severity: Moderate
4 Pervasive Problem: No
ID# 354148

Increased RPO
1 **Problem Description:** FlashCopy was delayed by lock contention for the In-Memory Relation Table. Function changed to use a different type of lock.
2 **Potential Impact of Problem:** degraded performance
3 **Problem Severity:** Moderate
4 **Pervasive Problem:** No
ID# 354227

Latency Spikes while running SafeGuarded Copy
1 **Problem Description:** High SGC activity, combined with lock contention on the backup volumes, consumed NVS space, impacting production workload.
2 **Potential Impact of Problem:** degraded performance
3 **Problem Severity:** Moderate
4 **Pervasive Problem:** No
ID# 354245, 354928

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

Reduce lock contention in QuickInit code
1   Problem Description: Lock contention causing FlashCopy latency spikes.
2   Potential Impact of Problem: degraded performance
3   Problem Severity: Moderate
4   Pervasive Problem: No
ID# 354585

0x7F0E MLE
1   Problem Description: A copy services Task Control Block was freed before the owning task had presented it's completion status.
2   Potential Impact of Problem: Warmstart
3   Problem Severity: Moderate
4   Pervasive Problem: No
ID# 354656

LPAR booted from the wrong bos image after FSP replacement
1   Problem Description: Multiple FSP replacements occurred, but code only auto-corrected the bos image pointer one time.
2   Potential Impact of Problem: Extended service action
3   Problem Severity: Moderate
4   Pervasive Problem: No
ID# 355226

Add Summary Bitmaps specific to PPRC Sync
1   Problem Description: In some environments, where volumes are large and relatively few tracks are being written (and so few Out-Of-Sync bits are being set), the Upper Tier of PPRC Sync can become a performance bottleneck.
2   Potential Impact of Problem: degraded performance
3   Problem Severity: Moderate
4   Pervasive Problem: No
ID# 350881

CMUN00015E error while removing a logical ESE volume
1   Problem Description: Volume deletion process using 'force' option, hung because of erroneous indications of operations in process.
2   Potential Impact of Problem: Warmstart required
3   Problem Severity: Moderate
4   Pervasive Problem: No
ID# 351178

0x0632 MLE and single LPAR reboot while formatting IBMi LUNs
1   Problem Description: While formatting a large number of LUNs, a local variable truncated the Task Control Block counter.
2   Potential Impact of Problem: Unable to complete formatting tasks
3   Problem Severity: Moderate
4   Pervasive Problem: No
ID# 354511

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

Service: A recoverable error, Service improvements.

Transparent Cloud Tiering setnetworkport error
1   **Problem Description:** CMUN04003E error setting TCT network interface IP address, when Primary/Secondary DNS are '0.0.0.0'
2   **Potential Impact of Problem:** Unable to configure IP addresses
3   **Problem Severity:** Service
4   **Pervasive Problem:** No
ID# 350546

CPC hard drive replacement failure
1   **Problem Description:** Problem analysis routines call out the hard drive as the first FRU, when the problem is in the SAS controller.
2   **Potential Impact of Problem:** Extended service action
3   **Problem Severity:** Service
4   **Pervasive Problem:** No
ID# 350893

RPC repair failed
1   **Problem Description:** Repair procedure did not provide a complete list of FRUs for the repair.
2   **Potential Impact of Problem:** Extended service action
3   **Problem Severity:** Service
4   **Pervasive Problem:** No
ID# 351249

DS GUI Remote Authentication screen returns to "Other LDAP"
1   **Problem Description:** When returning to the Configure Remote Authentication panel, the "Other LDAP Server" radio button is selected, even when one of the other choices was already configured.
2   **Potential Impact of Problem:** none
3   **Problem Severity:** Service
4   **Pervasive Problem:** No
ID# 351817

zHyperLink wrap test missing prompt
1   **Problem Description:** While running a zHyperLink wrap test, SSR was not prompted to install the wrap plug.
2   **Potential Impact of Problem:** Repair/Verify failure
3   **Problem Severity:** Service
4   **Pervasive Problem:** No
ID# 351966

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

Code bundle activation hang
1   Problem Description: A locking exception caused the code update process to hang while backing up HMC critical data.
2   Potential Impact of Problem: Extended service action
3   Problem Severity: Service
4   Pervasive Problem: No
ID# 351993

User not logged out after a policy change
1   Problem Description: LDAP user policy change is not being enforced for users that are already logged in.
2   Potential Impact of Problem: Security exposure
3   Problem Severity: Service
4   Pervasive Problem: No
ID# 352008

Incorrect VRAID adapter resource state
1   Problem Description: After a CDA recovery, VRAID adapter Resource Manager attributes incorrectly showed the adapters in 'Offline' state.
2   Potential Impact of Problem: Extended service action
3   Problem Severity: Service
4   Pervasive Problem: No
ID# 352042

Encryption key retrieval failures
1   Problem Description: When periodic key retrieval delivered invalid certificate data, ESSNI failed to return an error indication, because of a NegativeArraySize exception.
2   Potential Impact of Problem: none
3   Problem Severity: Service
4   Pervasive Problem: No
ID# 352068

0x7E38 MLE
1   Problem Description: Remote Pair FlashCopy fail, with multiple extents having the same source and target volume, triggered a Microcode Logic Error.
2   Potential Impact of Problem: ODD dump
3   Problem Severity: Service
4   Pervasive Problem: Yes
ID# 352133

SAN 'fcping' utility fails on newer Host Adapters
1   Problem Description: Extended Link Service Echo command returns "not supported" response on 16Gb and 32Gb host adapters.
2   Potential Impact of Problem: none
3   Problem Severity: Service
4   Pervasive Problem: No
ID# 352177

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

Improve syslog server configuration error messages
1 Problem Description: Multiple error states are displaying the same message.
2 Potential Impact of Problem: Extended problem determination
3 Problem Severity: Service
4 Pervasive Problem: No
ID# 352419

False I/O Enclosure power supply SRCs BE198C9C and BE198CFD
1 Problem Description: I/O enclosure communication faults were not being cleared when communication was recovered
2 Potential Impact of Problem: none
3 Problem Severity: Service
4 Pervasive Problem: Yes
ID# 352529

SafeGuarded Copy volumes are included in overall volume count
1 Problem Description: In DS GUI and DS CLI, Logical Corruption Protection volumes should be hidden from volume queries.
2 Potential Impact of Problem: none
3 Problem Severity: Service
4 Pervasive Problem: No
ID# 352598

Unable to verify iPDU firmware version after code bundle update
1 Problem Description: Display Storage Facility Code Levels function does not show iPDU firmware
2 Potential Impact of Problem: none
3 Problem Severity: Service
4 Pervasive Problem: No
ID# 352630

Management Enclosure power supply replacement failure
1 Problem Description: In DS8910F model 993, using Customer-supplied PDUs, repair will fail because iPDU resource manager objects show iPDU state is "Not Present".
2 Potential Impact of Problem: Repair action failure
3 Problem Severity: Service
4 Pervasive Problem: No
ID# 353307

CDA suspend while second LPAR is being updated
1 Problem Description: An ESSNI query of a new Resource Manager attribute caused the Resource Manager to terminate.
2 Potential Impact of Problem: Extended service action
3 Problem Severity: Service
4 Pervasive Problem: No
ID# 353588

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

DS GUI could not change callhome settings
1   Problem Description: ESSNI communications failed because of missing Resource Manager HMC attribute values.
2   Potential Impact of Problem: none
3   Problem Severity: Service
4   Pervasive Problem: No
ID# 353640

DS CLI 'setauthpol' failures
1   Problem Description: Some parameters in the setauthpol command are rejecting values containing spaces.
2   Potential Impact of Problem: none
3   Problem Severity: Service
4   Pervasive Problem: No
ID# 353722

0x01B7:1000 MLE
1   Problem Description: Insufficient retries allowed for NVS Track ID list lock spin processing.
2   Potential Impact of Problem: ODD Dump
3   Problem Severity: Service
4   Pervasive Problem: No
ID# 353730

Attention LED turned off
1   Problem Description: Health checker turned off the Attention LED when a problem had not yet been resolved.
2   Potential Impact of Problem: none
3   Problem Severity: Service
4   Pervasive Problem: No
ID# 353778

Incorrect FRU list order
1   Problem Description: HPFE Gen2 midplane VPD error incorrectly prioritizes Expander module replacement before the midplane.
2   Potential Impact of Problem: Repeated service actions
3   Problem Severity: Service
4   Pervasive Problem: No
ID# 353886

Unable to modify security policy
1   Problem Description: If the security policy is active, the secadmin user is not permitted to modify it.
2   Potential Impact of Problem: none
3   Problem Severity: Service
4   Pervasive Problem: No
ID# 353931

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

LPAR hard drive replacement failed
1 **Problem Description:** Disk failure called out the wrong FRU, because of a problem with the error log search.
2 **Potential Impact of Problem:** Extended repair action
3 **Problem Severity:** Service
4 **Pervasive Problem:** No
ID# 353954

mkaliasvol fails with CMUN04003E error
1 **Problem Description:** Creating multiple CKD alias volumes may trigger an internal Resource Manager core dump, if the RM exceeds available resources.
2 **Potential Impact of Problem:** Failure to create PAVs
3 **Problem Severity:** Service
4 **Pervasive Problem:** No
ID# 354071

Unexpected SF shutdown during repair
1 **Problem Description:** During a non-concurrent Storage Enclosure midplane replacement, in a small configuration, repair code incorrectly determined the repair would remove the last path to Global Metadata.
2 **Potential Impact of Problem:** none
3 **Problem Severity:** Service
4 **Pervasive Problem:** No
ID# 354497

SRC BE19005A caused by RPC register corruption
1 **Problem Description:** While running a procedure to recover the Storage Facility Resource Manager configuration to the HMC, parallel threads were accessing the same RPC register location, leading to corrupted register contents.
2 **Potential Impact of Problem:** Repeated repair actions
3 **Problem Severity:** Service
4 **Pervasive Problem:** No
ID# 354545

DS GUI issues configuring SafeGuarded Copy capacity multiplier
1 **Problem Description:** DS GUI aggressively tries to pre-populate the field with '1.5' while the user attempts to edit the value.
2 **Potential Impact of Problem:** none
3 **Problem Severity:** Service
4 **Pervasive Problem:** No
ID# 354901

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

Improvements: Improvements for better usability

Show volume provisioning in SCSI inquiry response
1   **Problem Description:** Indicate thin provisioning in SCSI inquiry page 0xB2 response
2   **Potential Impact of Problem:** none
3   **Problem Severity:** Improvement
4   **Pervasive Problem:** No
ID# 321099

Remove EMC super administrator HMC role
1   **Problem Description:** Remove HMC role that is no longer used.
2   **Potential Impact of Problem:** none
3   **Problem Severity:** Improvement
4   **Pervasive Problem:** No
ID# 350825

Improve detection of latent LRC errors
1   **Problem Description:** Expand nightly LRC scans to include additional data structures.
2   **Potential Impact of Problem:** none
3   **Problem Severity:** Improvement
4   **Pervasive Problem:** No
ID# 351537

IBM System Storage - DS8900F Disk Storage
Microcode Bundle 89.20.147.0 Release Note Information

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