

IBM System Storage DS8880 Disk Storage

88.0.x.x Release Notes Cumulative Summary v3.2

Date: February 12, 2018

VRMF Level Data Results:

| | |
|------------------|-------------------------|
| VRMF level From: | 88.0.151.0 & 88.0.153.0 |
| VRMF Level To: | 88.1.54.0 |
| Report for: | DS8880 |

Code Bundle Contents

| DS8880 Code Bundle Level | SEA or LMC Version: | DS CLI Client | STAT Tool | Heat Map Transfer Utility | Storage Manager |
|--------------------------|---------------------|---------------|-----------|---------------------------|-----------------|
| 88.1.54.0 | 7.8.1.133 | 7.8.1.133 | 7.8.1.133 | 7.8.1.133 | 5.8.1.1060 |
| 88.1.40.0 | 7.8.1.95 | 7.8.1.95 | 7.8.1.95 | 7.8.1.95 | 5.8.1.1042 |
| 88.1.26.0 | 7.8.1.62 | 7.8.1.62 | 7.8.1.62 | 7.8.1.62 | 5.8.1.1029 |
| 88.1.23.0 | 7.8.1.53 | 7.8.1.53 | 7.8.1.53 | 7.8.1.53 | 5.8.1.1025 |
| 88.1.22.0 | 7.8.1.51 | 7.8.1.51 | 7.8.1.51 | 7.8.1.51 | 5.8.1.1024 |
| 88.1.17.0 | 7.8.1.41 | 7.8.1.41 | 7.8.1.41 | 7.8.1.41 | 5.8.1.1019 |
| 88.0.151.0 ¹ | 7.8.0.418 | 7.8.0.418 | 7.8.0.418 | 7.8.0.418 | 5.8.0.1302 |
| 88.0.153.0 ² | 7.8.0.424 | 7.8.0.424 | 7.8.0.424 | 7.8.0.424 | 5.8.0.1304 |

Note 1 – DS8886 Enterprise Class, 283x-981 only

Note 2 – DS8884 Business Class, 283x-980 only

This is a summary of the fixes in the R8.0 microcode releases.

Select Modifications Included in this Release Note:

This is a list of some modifications contained across one or more LIC levels (License Internal Code) or microcode release(s). The potential impact is variable. Specific environments may aggravate or degrade the potential impact.

Problem(s) reported in this release note may not be in higher levels of code bundles.

Definition of Problem Severity:

| | | |
|----------|--------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | High Impact | - Acute: An irrecoverable error with potential loss of data. - Serious: An irrecoverable error with potential loss of access to data. |
| 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.

FlashCopy caused TFD mismatch on PPRC secondary

1. **Problem Description:** Executing FlashCopy Establish to a target volume that is a PPRC primary, caused incorrect data to be written to the PPRC secondary.
2. **Potential Impact of Problem:** loss of data
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No
5. **Release Bundle:** 88.1.40.0

ID#: 312069

HIPER Both V-RAID adapters fenced

1. **Problem Description:** Insufficient time is being given to complete error recovery, which can lead to fencing of both V-RAID adapters
2. **Potential Impact of Problem:** loss of access and/or data
3. **Problem Severity:** HIPER
4. **Pervasive Problem:** Yes
5. **Release Bundle:** 88.1.22.0

ID#: 313417

HIPER XRC suspend, abend 9C4-10, No Record Found

1. **Problem Description:** Write command with Bypass Extent Checking set, needs to still check for extent conflicts if prior I/Os did not also specify BEC.
2. **Potential Impact of Problem:** Loss of Data on secondary
3. **Problem Severity:** HIPER
4. **Pervasive Problem:** No
5. **Release Bundle:** 88.1.22.0

ID#: 313493

Serious: An irrecoverable error with potential loss of access to data.

Loss of access during Device Adapter replacement

1. **Problem Description:** Temporary loss of access may occur during DA replacement in a large configuration, because of a microcode logic error.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No
5. **Release Bundle:** 88.1.54.0

ID#: 315732

Adapter showstop errors on both Device Adapters

1. **Problem Description:** A microcode logic error triggered repeated showstop errors on both DAs in the pair.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No
5. **Release Bundle:** 88.1.54.0

ID#: 315843

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Dual I/O enclosure fence after PCIe error

- 1. Problem Description:** During PCIe error recovery on one I/O enclosure, the partner enclosure was also fenced because of a microcode logic error.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No
- 5. Release Bundle:** 88.1.54.0

ID#: 316746

HIPER IOS078I on multiple paths

- 1. Problem Description:** A sequential track had 'Invalidate Metadata' flag set, so was skipped during demote scan. But its timestamp was not changed, so it remained the oldest track.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** HIPER
- 4. Pervasive Problem:** Yes
- 5. Release Bundle:** 88.1.54.0

ID#: 319030

Incomplete list of bad sectors

- 1. Problem Description:** When processing the list of bad sectors during rank rebuild, the list may be incomplete if it is processed before the rank is back online. Full extent of data loss will be unknown.
- 2. Potential Impact of Problem:** A host scan of the potentially affected volume(s) is required.
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No
- 5. Release Bundle:** 88.1.54.0

ID#: 319245

Unit check returns invalid SCSI sense data

- 1. Problem Description:** Unit check sense data for LRC and Sequence Number errors is all zeros
- 2. Potential Impact of Problem:** May cause unexpected host errors
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No
- 5. Release Bundle:** 88.1.54.0

ID#: 319253

0x60CA timeout MLE

- 1. Problem Description:** Multiple microcode logic timeout errors were triggered by a specific CCW chain:
CCW RC/RCMT with ccwByteCount=8, followed by
Data Chain CCW RC/RCMT with any ccwByteCount
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No
- 5. Release Bundle:** 88.1.54.0

ID#: 320238

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HIPER Global Mirror stops forming consistency groups after volume removal

- 1. Problem Description:** <http://www-01.ibm.com/support/docview.wss?uid=ssg1S1009636>
 - 2. Potential Impact of Problem:** Global Mirror error
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 322264

HIPER Device Adapter showstop

- 1. Problem Description:** After smart rebuild abort, the disk deconfigure process hangs, causing DDM replacement failures. If a second DDM fails in the same adapter pair, the prior deconfigure hang can lead to showstop of both DAs, and temporary loss of access.
 - 2. Potential Impact of Problem:** Loss of Access
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** Yes
 - 5. Release Bundle:** 88.1.40.0
- ID#: 309226

V-RAID unit check did not reset the adapter

- 1. Problem Description:** A V-RAID adapter was issuing repeated unit checks because expected recovery actions were not done.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 312824

Repeated PCIe fabric errors caused LoA

- 1. Problem Description:** During LPAR failover/failback, PCIe fabric errors on the failing LPAR can cause a loss of the last Device Adapter path.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 312929

Loss of Access to RAID-6 arrays caused by DA NVRAM failure

- 1. Problem Description:** RAID-6 arrays may go offline for ~90 seconds after a Device Adapter NVRAM failure.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 313179

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Storage Manager CMUN0410E error

- 1. Problem Description:** After a storage system power up, if encryption key servers are not available, DS GUI does not allow access to enter the recovery key.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 313345

GDPS freeze after Metro Mirror suspend

- 1. Problem Description:** Cache deadlock led to rank metadata prestage failures.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 313714

Ranks created without spares

- 1. Problem Description:** Ranks that should have been created with spares (6+P+S) were created without (7+P). If this happens with only two ranks on a DA Pair, no spares will be available.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 315128

Temporary loss of access and 0x14E MLE during failback

- 1. Problem Description:** A timing condition during cluster failback may result in NVS journal cleaner loop, that hangs the failback sequence for 30 seconds.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 316421

Full copy required to recover from hyperswap in CFE mode

- 1. Problem Description:** Cascaded Failover Enhancement is a form of Multi-Target PPRC that allows failover to a 'B' copy. But the code did not allow recover from B -> A without doing a full copy.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 316985

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POR of host system may cause IFCCs on other hosts

- 1. Problem Description:** Power-On-Reset of System z host may result in DS8K 16Gb/S Host Adapters sending continuous Test Initialization (TIN) requests, until Host Adapters run out of exchanges.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 317619

ABORT VOL TASKS 2 error on nSeries systems

- 1. Problem Description:** Change the DS8K default QERR setting of 01 to 00 for nSeries hosts
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 317746

PPRC I/O context out of sequence

- 1. Problem Description:** A timing condition results in a task being left on the out-of-order queue, without being processed
 - 2. Potential Impact of Problem:** PPRC suspend, GDPS failure
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.22.0
- ID#: 312795

LPAR filesystems filling up

- 1. Problem Description:** ESSNI log backup and prune was not keeping up when systems have a lot of TPC query activity.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 312189

HIPER Repeated V-RAID adapter resets

- 1. Problem Description:** A flash card failed in a way that led to repeated V-RAID adapter resets. Fix will detect the condition, and immediately bypass the failing flash card.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** Yes
 - 5. Release Bundle:** 88.1.17.0
- ID#: 312369

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Repeated warmstarts after processor memory riser failure

- 1. Problem Description:** Hardware failure in one cluster reduced its available processor memory by half, exposing a memory management microcode error.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No
- 5. Release Bundle:** 88.1.17.0

ID#: 312745

HIPER Track Format Descriptor mismatch

- 1. Problem Description:** Improper setting of flags leads to corruption of the modified sector bitmap.
- 2. Potential Impact of Problem:** Global Mirror suspend
- 3. Problem Severity:** HIPER
- 4. Pervasive Problem:** Yes
- 5. Release Bundle:** 88.1.17.0

ID#: 312882

Flash Card media error

- 1. Problem Description:** A single Flash Card was logging a high number of media and SAS errors, and ultimately caused a loss of access. With this fix, if the array is not already exposed, the Flash Card will be rejected on the first occurrence of a SAS T10 Reference Tag, or CRC error.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No
- 5. Release Bundle:** 88.1.17.0

ID#: 312984

RPC config data corruption

- 1. Problem Description:** A write flash operation failed, erasing portions of the config data.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No
- 5. Release Bundle:** 88.1.17.0

ID#: 313409

Repeated warmstarts with iSeries linked command chains

- 1. Problem Description:** A small timing window allows the next I/O in a linked command chain, before response was sent for the prior I/O.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No
- 5. Release Bundle:** 88.1.17.0

ID#: 313424

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XRC suspend, abend 9C4-10, No Record Found

1. **Problem Description:** Write command with Bypass Extent Checking set, needs to still check for extent conflicts if prior I/Os did not also specify BEC.
 2. **Potential Impact of Problem:** XRC Suspend
 3. **Problem Severity:** High Impact
 4. **Pervasive Problem:** No
 5. **Release Bundle:** 88.1.17.0
- ID#: 313493

DSI on Both LPARs

1. **Problem Description:** Define Subsystem Operation 0x77 (Manage Session Members) specifying an address range that contains 0xFF, will hold onto CPUs in an infinite loop.
 2. **Potential Impact of Problem:** loss of access
 3. **Problem Severity:** High Impact
 4. **Pervasive Problem:** No
 5. **Release Bundle:** 88.1.17.0
- ID#: 314452

HIPER Host bay powered off

1. **Problem Description:** Host Bay can power off when the room temperature is below 14°C
Note: This optional firmware update requires special handling, that is done outside the framework of the normal code update process.
 2. **Potential Impact of Problem:** loss of access
 3. **Problem Severity:** HIPER
 4. **Pervasive Problem:** Yes
 5. **Release Bundle:** 88.1.17.0
- ID#: 314832

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

0x5504 MLE

1. **Problem Description** Microcode logic error triggered by PPRC datamover task timeouts. Fix will prioritize datamover tasks before they time out.
 2. **Potential Impact of Problem:** Warmstart
 3. **Problem Severity:** Moderate
 4. **Pervasive Problem:** No
 5. **Release Bundle:** 88.1.54.0
- ID#: 312774

EasyTier volume assignments missing on one LPAR after CDA

1. **Problem Description:** Volumes assigned to a single tier may revert to multi-tier after CDA, because of a microcode logic error.
 2. **Potential Impact of Problem:** degraded performance
 3. **Problem Severity:** Moderate
 4. **Pervasive Problem:** No
 5. **Release Bundle:** 88.1.54.0
- ID#: 313228

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0x014E MLE during CDA

- 1. Problem Description:** A microcode logic error may occur when ESE volume space release occurs during CDA
 - 2. Potential Impact of Problem:** Warmstart, CDA suspend
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 315971

Multiple 0x1C14 MLEs

- 1. Problem Description:** A specific flash card failure exposed a microcode logic error processing the enclosure disk list.
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 317477

Very high sequential workloads affect random performance

- 1. Problem Description:** With very high sequential workloads, cache hit ratios can decline for random workloads. Fix provides an optional persistent pokeable to increase retention of random workload tracks in cache.
 - 2. Potential Impact of Problem:** degraded performance
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 317717

Unable to remove FlashCopy relationship

- 1. Problem Description:** A volume with format in process was interrupted by an unrelated warmstart. After the warmstart, the format was still in process, but did not actually resume.
 - 2. Potential Impact of Problem:** Unable to remove FLC relationship
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 318448

0x740D MLE

- 1. Problem Description:** Global Mirror write thread encountered an invalid device ID because of a microcode logic error.
 - 2. Potential Impact of Problem:** Warmstarts
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 318952

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zLinux path errors during CDA

- 1. Problem Description:** zLinux does not support the default QERR setting in DS8K, for fibre channel SCSI events. Fix maps zLinux to the 'nSeries' initiator type, which provides the correct QERR behavior.
 - 2. Potential Impact of Problem:** loss of path
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 320116

0x1C3D MLE during flash rank create or delete

- 1. Problem Description:** VRAID adapter processing two Query Array Config commands at the same time, caused a microcode logic error.
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** Yes
 - 5. Release Bundle:** 88.1.40.0
- ID#: 308351

0x5168 MLE with 145 ranks configured

- 1. Problem Description:** When 145 total ranks are configured, incorrect data transfer on Log sense 34h command can trigger a microcode logic error.
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 310447

I/O timeouts, transaction purge

- 1. Problem Description:** A failing DDM in a RAID-5 array may impact write performance, until it is rejected from the array.
 - 2. Potential Impact of Problem:** degraded performance
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 311955

Bypass Extent Check not working

- 1. Problem Description:** Using the Change Recording bit as an indicator that FlashCopy is active, is no longer reliable.
 - 2. Potential Impact of Problem:** degraded performance
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 312392

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0x01B7 MLE when establishing MT-PPRC

- 1. Problem Description:** Establishing Multi-Target PPRC relation fails with a locking exception.
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** Yes
 - 5. Release Bundle:** 88.1.40.0
- ID#: 312779

Performance impact during host adapter update

- 1. Problem Description:** PPRC was continuing to use a path that was experiencing errors. Host adapter update recycled the good path, exposing the problem.
 - 2. Potential Impact of Problem:** degraded performance
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 312808

Host Adapter MLE

- 1. Problem Description:** Host adapter reported TX_DMA error on an inactive link
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 312819

Host Adapter MLE on zHPF write

- 1. Problem Description:** A zHPF write having more than 55 records exposes a microcode logic error
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 312842

Device Adapter MLE

- 1. Problem Description:** Hot Spare flags were not properly initialized.
 - 2. Potential Impact of Problem:** Adapter dump, Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 314144

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0x700B MLE

- 1. Problem Description:** A timing window exists when a Consistency Group fails, and a Global Copy collision was in flight, Global Mirror may think the GC collision is still in flight, triggering a microcode logic error.
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 314648

Slow DB2 Reorg on System z.

- 1. Problem Description:** Unusual PAV configuration resulted in EasyTier heat data being presented to the host on an alias device. Fix will check that the device being used for offload is in an active path group, and that it is not an alias device.
 - 2. Potential Impact of Problem:** degraded performance
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 314718

0x5E0 MLE, and fenced cluster

- 1. Problem Description:** A timing window exists where a V-RAID adapter is being configured and a periodic process to collect rank and adapter statistics receives invalid data, triggering an LPAR crashdump.
 - 2. Potential Impact of Problem:** degraded performance
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 315779

0x1C3C MLE during array create

- 1. Problem Description:** Log sense timeout in davradisklist and davradiskinfo routines.
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 317511

0x01B7 MLE

- 1. Problem Description:** Lock contention on PPRC Primary when many Host I/Os are running in parallel
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** Yes
 - 5. Release Bundle:** 88.1.26.0
- ID#: 314088

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0xB40B MLE

- 1. Problem Description:** I/O responses can be put on the wrong response queue when processing linked command chains on IBM i hosts
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.26.0
- ID#: 314765

0x01B7 MLE

- 1. Problem Description:** Microcode logic errors are being caused by Copy Services lock contention. Fixes improve CS lock processing.
 - 2. Potential Impact of Problem:** ODD/Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** Yes
 - 5. Release Bundle:** 88.1.23.0
- ID#: 312748, 313453, 314654

Host bay firmware update caused failover

- 1. Problem Description:** Cluster Systems Management timeout during firmware update caused AIX to crashdump
 - 2. Potential Impact of Problem:** degraded performance
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.22.0
- ID#: 315606

PPRC extended query reports volume pending status

- 1. Problem Description:** When performing flashcopy to a Global Mirror volume pair, the volume status always shows as 'pending'. The underlying state was intended to only be used for Metro Mirror pairs.
 - 2. Potential Impact of Problem:** May cause DR test to fail
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 311653

0x01B7 MLE

- 1. Problem Description:** Device Adapter logical config query thread is taking too long to complete
 - 2. Potential Impact of Problem:** Warmstart
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** Yes
 - 5. Release Bundle:** 88.1.17.0
- ID#: 313416

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Service: A recoverable error, Service improvements.

Unable to offload DC-UPS internal data when DC-UPS is fenced

- 1. Problem Description:** Unable to retrieve internal debug data. Fix will offload the data prior to fencing the DC-UPS
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 291926

Network Interface server event queue wrapped

- 1. Problem Description:** GUI may not accurately reflect the current system state.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 302466

Secure Data Overwrite failure

- 1. Problem Description:** No completion certificate generated if overwrite process fails on HMC Hard drive.
 - 2. Potential Impact of Problem:** Extended SDO process
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 307647

False reporting of internal fence condition

- 1. Problem Description:** During a repair action, healthcheck may run, and detect an internal fence condition. This can then cause the repair to fail.
 - 2. Potential Impact of Problem:** Extended service action
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 315294

Firefox requests profile update

- 1. Problem Description:** When HMC WUI has not been running for an extended period, Firefox requests a profile update at the next startup. Updating the profile will cause WUI failure, and can require HMC reload to recover.
 - 2. Potential Impact of Problem:** HMC WUI failure
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 317433

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Update Assist OnSite fixpack

- 1. Problem Description:** AOS fixpack resolves certain types of connection failures.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 317789

Incorrect logging of 16Gb HA link counters

- 1. Problem Description:** Host Adapter ports logging incorrect send_buffer_zero counts because of a microcode logic error.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 317802

Improve remapping of host port definitions

- 1. Problem Description:** Version of DS GUI introduced in r7.4 requires a one-time remap of open system host port definitions. Fix provides an improved method to perform this task.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** Yes
 - 5. Release Bundle:** 88.1.54.0
- ID#: 317950

Multiple call-home for a single serviceable event

- 1. Problem Description:** HMC problem analysis may not properly determine that a serviceable event was already called in.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 318252

Secure Data Overwrite failure

- 1. Problem Description:** CEC hard drive mirroring could not be terminated because a member drive was not in a good state. Fix will perform additional checks prior to beginning SDO.
 - 2. Potential Impact of Problem:** Extended SDO process
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 318506

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Unable to resume LPAR after repair

- 1. Problem Description:** LPAR failed during CDA. After repair, LPAR would not resume to dual.
 - 2. Potential Impact of Problem:** Extended service window
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 318602

SRC=BE190009 displays incorrect text

- 1. Problem Description:** HMC text description does not use same terminology as Knowledge Center.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 319337

NI Client out of memory error

- 1. Problem Description:** When a connection failure occurs, server is retrying too quickly
 - 2. Potential Impact of Problem:** None
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 319404

Serviceable event location code label incorrect

- 1. Problem Description:** Location code incorrectly labeled "serial number"
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 319787

False SRC=BE340006 Cabling error detected

- 1. Problem Description:** Plug order lists for Rack 5 enclosures G18 and below.
 - 2. Potential Impact of Problem:** Extended service action
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 319820

Excessive "VOLSER changed" messages

- 1. Problem Description:** GUI is polling for VOLSER changes, but is logging even when the VOLSER did not change.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** Yes
 - 5. Release Bundle:** 88.1.54.0
- ID#: 319969

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VRAID adapter serial numbers not updated

- 1. Problem Description:** During VRAID adapter repair, enclosure serial number and firmware level are not updated in the new adapter.
 - 2. Potential Impact of Problem:** Manual update required
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** Yes
 - 5. Release Bundle:** 88.1.54.0
- ID#: 320106

Stale data in heartbeat callhome

- 1. Problem Description:** Heartbeat snap data was collected from the wrong location
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 320320

lsddm displays incorrect DDM model information

- 1. Problem Description:** DSCLI appends capacity after the DDM family info which results in incorrect model info
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#: 320767

VRAID adapter fan failure

- 1. Problem Description:** Threshold for fan failures is too low, resulting in difficulty differentiating between false triggers and real failures.
 - 2. Potential Impact of Problem:** Unnecessary service actions
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID#: 321813

Automate DC-UPS event log collection after IML

- 1. Problem Description:** Improve data collection after power off event.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 291512

TPC reports higher write response times than expected

- 1. Problem Description:** Performance routines were including stats collection as write activity
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 308840

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Background media scan false positives

- 1. Problem Description:** On certain 300G/15K drive families, log entries created by internal scan routines are being mis-counted as media events.
 - 2. Potential Impact of Problem:** Excessive drive replacements
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 309568

Selectively filter state=10 DDM information

- 1. Problem Description:** DDMs marked for deferred replacement (state=10) are incorrectly being shown in DS GUI, DSCLI, and TPC-R queries.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#: 310532

Heartbeat callhome failure on 2x2 systems

- 1. Problem Description:** Internal callhome array size may not be large enough to contain data from both storage facilities.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:312120

SSR unable to launch MPRD config panel

- 1. Problem Description:** SSR is unable to configure MRPD (heartbeat) callhome, because of an incorrect cipher suite configuration in the HMC.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:313471

Incorrect V-RAID adapter status in GUI

- 1. Problem Description:** Storage Manager GUI shows incorrect V-RAID adapter status information. V-RAID status information should only be shown as part of the Flash Enclosure status.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:313726

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HMC failed to callhome a problem

- 1. Problem Description:** After a reboot, the storage facility object was refreshed with corrupted machine type/serial number data
 - 2. Potential Impact of Problem:** Unable to call home for problems
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:313761

False SRC=BE820115

- 1. Problem Description:** During a service action healthcheck surfaced an I2C bus error, and created a false serviceable event.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:314348

HMC contacting addons.mozilla.org

- 1. Problem Description:** Firefox language pack add-ons periodically check for updates. This is benign, but the traffic appears suspicious. HMC configuration has been changed to block the outbound traffic.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:314354

Security scan missing TLS v1.2

- 1. Problem Description:** Legacy port 9660 was open for MSIE applet compatibility. This port was no longer used, so was not updated for TLS v1.2 authentication, causing security scans to flag the vulnerability.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:314401

Unable to change private IP range to 9.x.x.x

- 1. Problem Description:** After the change, each HMC saw the other as offline in the peer node.
 - 2. Potential Impact of Problem:** Extended service action
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:315177

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HMC restore failure

1. **Problem Description:** Dual HMCs backup can transfer the data to the LPARs at the same time, which can cause corrupted backup.
 2. **Potential Impact of Problem:** Extended service action
 3. **Problem Severity:** Service
 4. **Pervasive Problem:** No
 5. **Release Bundle:** 88.1.40.0
- ID#:315489

'Event List Trimmed' messages in DS GUI

1. **Problem Description:** Excessive 'Event List Trimmed' messages, and some also have misleading descriptions.
 2. **Potential Impact of Problem:** none
 3. **Problem Severity:** Service
 4. **Pervasive Problem:** No
 5. **Release Bundle:** 88.1.40.0
- ID#:316046

DSCLI unable to login to older systems

1. **Problem Description:** Java security updates have disabled older ciphers that are needed to login to older systems, even when the disableSSLv3 workaround is applied.
 2. **Potential Impact of Problem:** none
 3. **Problem Severity:** Service
 4. **Pervasive Problem:** No
 5. **Release Bundle:** 88.1.40.0
- ID#:316136

SRC=BE1E2182 text is not clear

1. **Problem Description:** BE1E2182 should indicate that the LPAR resume could not complete because the **operational** LPAR is at a higher LIC level.
 2. **Potential Impact of Problem:** Extended service window
 3. **Problem Severity:** Service
 4. **Pervasive Problem:** No
 5. **Release Bundle:** 88.1.40.0
- ID#:316588

False key manager connection timeouts

1. **Problem Description:** When running key manager connectivity test, the operation gave a false failure result, because of an error in the GUI code.
 2. **Potential Impact of Problem:** none
 3. **Problem Severity:** Service
 4. **Pervasive Problem:** No
 5. **Release Bundle:** 88.1.40.0
- ID#:316729

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RPC fenced with SRC=BE19D1E1

- 1. Problem Description:** Running multiple instances of "View Hardware Topology" utility may cause Rack Power Control communication timeouts. Fix adds a "Busy" dialog, to indicate the utility is still running.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:316736

Storage Enclosure add MES failed

- 1. Problem Description:** Failure was caused by Resource Manger out-of-memory condition. Fix adds RM memory usage tracing
 - 2. Potential Impact of Problem:** Extended service action
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:316929

DS GUI 'Capacity' indicator colors are confusing

- 1. Problem Description:** Meaning of colors has been changed as follows:
If any pool is over-provisioned and over threshold, show capacity in yellow. If any pool is over-provisioned and full, show capacity in red
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:317008

Callhome / data offload failure after HMC reload and restore

- 1. Problem Description:** Customer proxy settings were not included in the HMC data backups.
 - 2. Potential Impact of Problem:** HMC unable to call home
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:317025

V-RAID adapter replacement failure

- 1. Problem Description:** Repair did not recognize Customer Card ID Number (CCIN) PSWH as a valid replacement part.
 - 2. Potential Impact of Problem:** Extended service window
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** Yes
 - 5. Release Bundle:** 88.1.40.0
- ID#:318026

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FRU list incorrect for SRC=BE197073

- 1. Problem Description:** Symbolic procedure calls RPC C2 port T206, should be port T205.
 - 2. Potential Impact of Problem:** Extended service action
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.40.0
- ID#:318575

SSL callhome failed

- 1. Problem Description:** Credential error while attempting to obtain a certificate from a server that is deprecated for DS8880.
 - 2. Potential Impact of Problem:** Unable to call home
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.22.0
- ID#: 315218

Assist On Site cannot connect

- 1. Problem Description:** After AOS service pack update, permissions are incorrect on the configuration file
 - 2. Potential Impact of Problem:** Unable to connect for remote support
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.22.0
- ID#: 315566

DS GUI does not show host connections

- 1. Problem Description:** The new-since-R7.4 DS GUI informs users on first launch that host connections need to be updated. If that update is skipped, the host connections will be grouped in the GUI as "Unassigned Host Ports". The messages have been improved to better describe what needs to be done, and that the changes will not result in the loss of any host paths.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 305201

Timeout deleting multiple volume aliases

- 1. Problem Description:** When deleting a single CKD volume that has multiple aliases, a microcode timeout caused failure to delete the aliases.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 311403

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CMUN00014E error in legacy DS GUI

- 1. Problem Description:** DS GUI fails opening "Copy Services" page, when no LSSs have been created yet.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 311405

SRC=BE1E1405 displays improper text

- 1. Problem Description:** Remove improper "Corrective Action" text
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 311606

Improve first-time data capture for DDM deconfigure

- 1. Problem Description:** Live dump during DDM deconfigure can fail when recovery actions are in progress. Fix will verify that the deconfigure dump is valid, and if not, we will capture another.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 312265

No wear leveling logs for 'HSRW' SSD drive family

- 1. Problem Description:** System is not collecting wear logs for this 200G SSD drive family.
 - 2. Potential Impact of Problem:** Unable to monitor SSD wear life
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 312563

Unable to clear red Alert icon in DS GUI

- 1. Problem Description:** With dual HMCs, a network communication between the HMCs can leave the DS GUI servers out of sync.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 312918

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No Customer email notification for SRC=BE310B01

1. **Problem Description:** Email notification did not occur because the SRC flag was not set for email notification.

This fix will also clarify the options on the Customer notify configuration setup pane. The first option will change from "Call home problem events only" to "Serviceable Event Notification only"

2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No
5. **Release Bundle:** 88.1.17.0

ID#: 312939

Prevent flashcopy to XRC volumes

1. **Problem Description:** Provide DS8880 feature license RPQ to allow a legacy FB-only flashcopy enablement key
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No
5. **Release Bundle:** 88.1.17.0

ID#: 313373

False SRC=B1112AB2 and B1112AB4

1. **Problem Description:** Incorrectly logging a serviceable event for a retryable processor power management controller error.
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No
5. **Release Bundle:** 88.1.17.0

ID#: 313494, 313548

Verify Bundle shows I/O enclosures downlevel after CDA

1. **Problem Description:** Firmware query was issued by both HMCs at the same time, causing a collision
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No
5. **Release Bundle:** 88.1.17.0

ID#: 313701

Incorrect TKLM bad path status reported

1. **Problem Description:** Primary and secondary HMC key manager heartbeat modes disagree
2. **Potential Impact of Problem:** none
3. **Problem Severity:** Service
4. **Pervasive Problem:** No
5. **Release Bundle:** 88.1.17.0

ID#: 313800

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False PCIe link degraded indication

- 1. Problem Description:** When servicing a host bay, the bay was fenced because of a false PCIe link indication
 - 2. Potential Impact of Problem:** Extended service action
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 314275

DS GUI shows enclosures in wrong location for rack 5

- 1. Problem Description:** DS GUI misinterpreted the starting enclosure internal location data for rack 5
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 314277

HMC LDAP Create Authentication failed

- 1. Problem Description:** When configuring LDAP authentication, user can not upload trust store file
 - 2. Potential Impact of Problem:** Unable to configure LDAP
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 314385

Add certificate to HMC AOS config file

- 1. Problem Description:** Ensure HMC will only communicate with a legitimate broker
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 314702

Improvements: Improvements for better usability

Show volume GUID in DS GUI

- 1. Problem Description:** Show GUID in volume properties dialog and exported summary.
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Improvement
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.54.0
- ID#:320507

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Update HMC AOS fixpack version

- 1. Problem Description:** HMC AssistOnSite v4 FP 2 update
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Improvement
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 311281

Support RAID-10 on SSDs

- 1. Problem Description:** For Fibre-attached SSDs, RAID-10 config is supported without RPQ
 - 2. Potential Impact of Problem:** none
 - 3. Problem Severity:** Improvement
 - 4. Pervasive Problem:** No
 - 5. Release Bundle:** 88.1.17.0
- ID#: 313897

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