IBM TotalStorage® DS8700 Disk Storage
Microcode Bundle 76.31.70.0 v3 Release Note Information

Release Date: September 30, 2013

VRMF Level Data Results:

VRMF level From:	76.31.55.0
VRMF Level To:	76.31.70.0
Report for:	All DS8700

Code Bundle Contents

DS8000 Code Bundle Level	SEA or LMC Version: Used with dscli *ver* command.	CLI Client Level	Storage Manager Code Level
76.31.70.0	6.6.31.560	6.6.31.470	5.6.31.1136

No new features and functions supported by Microcode Release 76.31.55.0 for DS8700, 242x model 941.

Features at a glance:

General:
• Improvements for HMC security
• Improvements to DA / DDM error handling
• Prevent GDPS freeze for invalid track format error detection

This is a new microcode release only supports the DS8700.

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: 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.

Host adapter sends invalid data to cache and NVS

1. **Problem Description:** Host adapter hardware failure caused corrupted tracks in cache and NVS. Ending status had been sent to the host before the corrupted tracks were detected. Warmstart occurred for each bad track that was detected.
2. **Potential Impact of Problem:** loss of data
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No

ID#: 280675

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

IOS071I Start Pending with zHPF active

1. **Problem Description:** Under very high channel utilization rates, during an I/O operation a microcode logic error can cause the operation to time-out. If this error is encountered on many command strings the host adapter resources can be over utilized.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** HIPER
4. **Pervasive Problem:** Yes

ID#: 284393

Repeated warmstarts and host adapters fenced

1. **Problem Description:** Due to a microcode logic error a specific CCW chain can cause repeated host adapter microcode errors leading to the host adapters being fenced.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** HIPER
4. **Pervasive Problem:** Yes

ID#: 273006

While single cluster operational the good cluster crashed

1. **Problem Description:** After a CEC hardware failure, the other CEC error recovery for FSP controlled resources results in a CEC crash due to an FSP firmware error.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** HIPER
4. **Pervasive Problem:** Yes

ID#: 281343

Rank remains inaccessible after rebuild started

1. **Problem Description:** During rank error handling the non-owning cluster rank status can keep the rank inaccessible after the rank transitions from offline to rebuilding.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** HIPER
4. **Pervasive Problem:** Yes

ID#: 284291

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Device Adapter unavailable for a second takeover after service

1. **Problem Description:** DA takeover maintains access to ranks during a dual failure of a cluster and a DA controlled by the running cluster. If the repair of the DA adapter fails during rank failback then loss of access to the ranks will occur because the DA Takeover fails the second time.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** HIPER
4. **Pervasive Problem:** Yes
ID#: 275266

Two failing power supply fans in one CEC causes fire hose dump

1. **Problem Description:** If both power supply fans in one CEC have faults the system will fire hose dump. The correct action would be to shutdown the CEC with the failing fans.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** HIPER
4. **Pervasive Problem:** Yes
ID#: 268868

Global Mirror resume failure due to PPRC sequence numbers

1. **Problem Description:** Problem exists when secondary device does not support PPRC sequence numbers (ESS800/DS6K/DS8K prior to R4.2). A microcode logic error sets an internal flag incorrectly.
2. **Potential Impact of Problem:** loss of GM function
3. **Problem Severity:** HIPER
4. **Pervasive Problem:** Yes
ID#: 278815

CEC to RPC communication failure causes cluster failover failure

1. **Problem Description:** CEC to RPC communication failure can result in a failover to the CEC that can not communicate to either RPC card. This will in both clusters being down due to no CEC to RPC communication.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No
ID#: 284777

Rank left in long busy during cluster failover and failback

1. **Problem Description:** Rank status is long busy during cluster failover and failback due to a microcode logic error
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No
ID#: 282185

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Large sequential writes can over utilize NVS preventing destage
1. **Problem Description:** Host doing a large number of 64K sequential writes can trigger a microcode logic error that causes excessive NVS utilization. This failure will prevent destage of the busiest tracks.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No
ID#: 280613

Fiber Channel Loop errors causes DAHP to reject DDMs
1. **Problem Description:** When DAHP is enabled some Fiber Channel loop error recovery scenarios will result in DDMs being slow to respond. This can lead to DAHP rejecting DDMs for being slow which and can result in degraded ranks.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No
ID#: 279289

Improve spare availability check during loop recovery
1. **Problem Description:** Improved spare checking for intermix drives types on the loop having spares that are not usable by arrays with the other drive drive type.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No
ID#: 284013

Device Adapter FC ports not disabled on internal processor failure
1. **Problem Description:** Adapter ports on failed DA card did not drop light, resulting in communication error on partner DA and loss of access to ranks for ~20 seconds.
2. **Potential Impact of Problem:** loss of access
3. **Problem Severity:** High Impact
4. **Pervasive Problem:** No
ID#: 284786

Moderate: A system path is not operational and performance might be degraded.

Temporary fence of I/O Bay during internal fabric error recovery
1. **Problem Description:** Error handling for a DMA read timeout can cause the I/O Bay to be fenced by the fabric error. Error recovery will resume the I/O bay several minutes later, up to 15 minutes.
2. **Potential Impact of Problem:** loss of path
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No
ID#: 281731

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Performance issue on SSD drives that slow to respond
1. **Problem Description:** SSD drives are currently rejected after four "Slow Disk" errors in a 24 hour period. To reduce performance impact, the failure threshold has been reduced to two "Slow Disk" errors in 1 hour.
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No
ID#: 283545

Drop light during HA error recovery causes performance impact
1. **Problem Description:** During HA error recovery, the adapter drops light on all ports, to assure hosts are notified the ports are not currently available. If a CKD host has dedicated allegiance on a path, this can cause additional recovery delay. This change will send "LOGOUT" to hosts before dropping light.
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No
ID#: 270655

Message ARC1803E fast replication is disabled
1. **Problem Description:** DS8K is incorrectly reporting that fast replication is not allowed because a microcode logic error prevents FlashCopy. TDMF is the only environment where this issues has surfaced.
2. **Potential Impact of Problem:** Data migration failure
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No
ID#: 280480

CUIR leaves paths offline following an I/O Bay repair
1. **Problem Description:** CUIR successfully varied all paths offline. During the resume of the I/O Bay a fabric error prevented CUIR from varying on all the paths.
2. **Potential Impact of Problem:** Manual path vary on
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No
ID#: 278603

PPRC suspend due to an error checking the track format on secondary
1. **Problem Description:** False trigger in track checking when record 0 is uninitialized on secondary is due to a microcode error. This will result in a GDPS freeze in that environment.
2. **Potential Impact of Problem:** GM suspend, GDPS freeze
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No
ID#: 286844

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Read I/O on FlashCopy source volumes not being counted by Easy Tier
1. **Problem Description:** On FlashCopy CST operation, Easy Tier records read I/O statistics on FlashCopy source volume against the target volume instead.
2. **Potential Impact of Problem:** degraded performance
3. **Problem Severity:** Moderate
4. **Pervasive Problem:** No
ID#: 286540

Service: A recoverable error, Service improvements.
SRC BE19DEAD logged after requested power off with dual HMC
1. **Problem Description:** Problem exists only if the zSeries remote power control feature is installed with the dual HMC feature. The power off request is processed by both HMCs. One successfully initiates the power down while the other HMC cannot because it is already in progress.
2. **Potential Impact of Problem:** Invalid serviceable event
3. **Problem Severity:** Service
4. **Pervasive Problem:** No
ID#: 284474

Unable to replace failed Device Adapter
1. **Problem Description:** DA fails Power On Self Test and configuration attempts to collect data but hits an internal fabric error. Error recovery does not fence the DA and the repair fails
2. **Potential Impact of Problem:** extended maintenance
3. **Problem Severity:** Service
4. **Pervasive Problem:** No
ID#: 264341

Device Adapter failing Power On Self Test can fence the I/O Bay
1. **Problem Description:** Microcode attempts to collect data and if the adapter is not responding an internal fabric error can result in the I/O Bay being fenced.
2. **Potential Impact of Problem:** loss of paths
3. **Problem Severity:** Service
4. **Pervasive Problem:** No
ID#: 272934

Device Adapter repair fails because ports disabled by partner DA
1. **Problem Description:** When DA ports are disabled during loop error recovery the error counters on the partner DA are not cleared during repair prior to enabling ports which can lead to repair failure.
2. **Potential Impact of Problem:** Failed Device Adapter repair
3. **Problem Severity:** Service
4. **Pervasive Problem:** No
ID#: 271429

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Internal slot level fabric error due to DMA time-out
1. **Problem Description:** A slot level error on the internal fabric is caused by a DMA time-out to an adapter.
2. **Potential Impact of Problem:** Warmstart
3. **Problem Severity:** Service
4. **Pervasive Problem:** Yes
ID#: 278993

XRC suspend reason code if exceeding the maximum side file entries
1. **Problem Description:** XRC suspended with ANTX5119E, REAS=0054. The suspend was logged as exceeding the maximum number of cache segments in the sidefile. The correct reason was exceeding the maximum number of sidefile entries.
2. **Potential Impact of Problem:** Incorrect reason code
3. **Problem Severity:** Service
4. **Pervasive Problem:** No
ID#: 277899

Host adapter parity error causes adapter reset and warmstart
1. **Problem Description:** 2Gb and 4Gb host adapter parity error detected during the memory scrub causes a warmstart. 8Gb host adapters are not exposed to this error.
2. **Potential Impact of Problem:** warmstart reduction
3. **Problem Severity:** Imp
4. **Pervasive Problem:** No
ID#: 278620

Improvements: Improvement for better usability
Host Adapter recoverable instruction cache parity error
1. **Problem Description:** Host adapter has a cache parity error and a warmstart is the automated error recovery. Firmware will reset the one HA for the automated error recovery, if successful no warmstart will occur.
2. **Potential Impact of Problem:** warmstart reduction
3. **Problem Severity:** Service
4. **Pervasive Problem:** Yes
ID#: 282749

Support for secure connections via https to the DSGUI
1. **Problem Description:** The HMC GUI can be accessed via http which is not encrypted. This change will support https connections to the DSGUI
2. **Potential Impact of Problem:** security exposure
3. **Problem Severity:** Improvement
4. **Pervasive Problem:** N/A
ID#: 282605

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Remove unused weak and medium-strength ciphers from HMC
1. **Problem Description:** HMC fails security audit because the unused ciphers do not meet audit standards.
2. **Potential Impact of Problem:** Security exposure
3. **Problem Severity:** Improvement
4. **Pervasive Problem:** N/A
ID#: 283105

MRPD scheduled operation interval changed to heartbeat schedule
1. **Problem Description:** Add MRPD enablement and configuration of the schedule interval to send MRPD data via heartbeat.
2. **Potential Impact of Problem:** N/A
3. **Problem Severity:** Improvement
4. **Pervasive Problem:** No
ID#: 278672

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