

IBM TotalStorage® DS8700 Disk Storage 1

Microcode Bundle 76.31.42.0 v3 Release Note Information

Release Date: April 4, 2013

VRMF Level Data Results:

VRMF level From:	76.31.32.0
VRMF Level To:	76.31.42.0
Report for:	All DS8700

Code Bundle Contents

DS8000 Code Bundle Level	SEA or LMC Version: Used with dscli <i>ver</i> command.	CLI Client Level	Storage Manager Code Level
76.31.42.0	6.6.31.170	6.6.31.150	5.6.31.1085

Overview of new features and functions supported by Microcode Release 76.31.42.0 for DS8700, 242x model 941.

Features at a glance:

- none

General:

- Improved DA and fiber channel arbitrated loop fault isolation
- Power repair improvements
- FlashCopy, zHPF and XRC error handling improvements
- New HMC base code contains fixes for dual HMC issues and call home failures

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.

Drive stuck in loop initialization on both loops can cause empty loops

- 1. Problem Description:** If a disk drive become stuck in fiber channel loop initialization on both ports it is possible both loops of a dual loop will be empty. This failure will cause a loss of access and could result in data loss.
 - 2. Potential Impact of Problem:** loss of data, loss of access
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** Yes
- ID#: 274106

Spare drive causing loop FC-AL errors can lead to medium errors

- 1. Problem Description:** When a bad drive is brought into the system one DA adapter can have an initialization degraded status before the peer DA started initialization. A microcode logic error can lead to medium errors on rank that is rebuilding.
 - 2. Potential Impact of Problem:** loss of data
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** Yes
- ID#: 274139

Primary Power Supply repair results in emergency shutdown

- 1. Problem Description:** During repair of a Primary Power Supply there are RPC to CEC communication errors such that one CEC can communicate with only one RPC and the other CEC can communicate with only the other RPC resulting in a loss of master power control and emergency shutdown.
 - 2. Potential Impact of Problem:** loss of access, loss of data is possible
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
- ID#: 274129

Host adapter write to NVS is dropped without error

- 1. Problem Description:** A host adapter write to NVS can be dropped without error due to a hardware failure. The problem is ending status can be sent to the host when the write to NVS is dropped.
 - 2. Potential Impact of Problem:** loss of data
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
- ID#: 272459

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

Emergency power off warning detected during PPS repair

- 1. Problem Description:** During PPS repair emergency power off warning is detected on one power supply. A microcode logic error in the recovery code caused a dual cluster reboot.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** Yes
- ID#: 272332

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Loss of input AC to one PPS results in Fire Hose Dump

- 1. Problem Description:** Loss of AC input to one Primary Power Supply can result in the partner Primary Power Supply incorrectly setting an internal internal fence condition.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** Yes
- ID#: 275568

Wrong RPC card fenced for 208 VDC error

- 1. Problem Description:** The wrong RPC card can be fenced for a 208 VDC error due to a microcode error.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** Yes
- ID#: 253041

DDM rejection results in RAID commands being blocked

- 1. Problem Description:** A data scrub read command is submitted to a DDM. After the command is submitted the DDM is deconfigured, before the read was processed. The DA is "hung" and RAID commands are being queued until the DA is reset by a showstop error.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** Yes
- ID#: 272095

DA to DA communication error causes logical disk failure

- 1. Problem Description:** When a specific DA to DA communication error is detected the error handling can disable all FC-AL loops due to a microcode logic error.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
- ID#: 275633

DA memory error can cause a rank to become write protected

- 1. Problem Description:** A DA adapter with a double bit memory error can result in a rank becoming write protected due to microcode logic error during the memory error handling. The rank will be online and there will volumes with pinned retryable data.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** High Impact
 - 4. Pervasive Problem:** No
- ID#: 278505

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Unstable FC-AL loop can cause both DA adapters to disable ports

- 1. Problem Description:** Noise caused by a device on the fiber channel arbitrated loops can cause both ports on both DA adapters in the pair to be disabled causing a dual loop to be unavailable, resulting in offline ranks
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No

ID#: 273755

Temporary loss of access to rank during drive error handling

- 1. Problem Description:** When a drive is not responding to commands there is a timing window where a logical disk failure can occur during the error recovery due to a microcode logic error.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No

ID#: 277328

Microcode returning equipment check for invalid zHPF command string

- 1. Problem Description:** An invalid command string is sent by an application with zHPF. Equipment check sense is returned in response to the invalid command string. This can result in a permanent I/O error.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No

ID#: 273834

XRC sidefile fills up if multi-reader XRC sessions are suspended

- 1. Problem Description:** During write intercept a sidefile entry is allocated. If cache is 60% full the new entry can not allocate space. Only the session the write was addressed to will be suspended. This can result in active an session to suspended device.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No

ID#: 268329

Dual HMC service failures and call home failure

- 1. Problem Description:** Repair on dual HMC will fail if the HMC is not the PA Primary. Additionally call home failures occurred due to microcode logic errors. New HMC base code has fixed both the repair failures and the call home failures. Call home failures can lead to multiple failures if the first failures are not reported to IBM.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No

ID#: 277090

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

Global mirror fatal error is possible with FlashCopy revertible pairs

- 1. Problem Description:** When there are network issues and FlashCopy was established revertible option then Global Mirror can experience a fatal error due to a microcode error
- 2. Potential Impact of Problem:** Global Mirror suspend
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID#: 274483

zHPF format write can cause XRC suspend with 9C4-08 abend

- 1. Problem Description:** zHPF format write command has 55 records to an XRC device cause an XRC suspend. This only occurs with 55 record format write command.
- 2. Potential Impact of Problem:** XRC suspend
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** No

ID#: 273490

Synchronous PPRC pair "stalls" in duplex pending state

- 1. Problem Description:** When a FlashCopy target is a PPRC primary and a FlashCopy establish incremental command is issued the target will remain in duplex pending state if source is updated. If Preserve Mirror is used with FlashCopy this problem will not occur.
- 2. Potential Impact of Problem:** loss of sync between PPRC pair
- 3. Problem Severity:** Moderate
- 4. Pervasive Problem:** Yes

ID#: 272514

Service: A recoverable error, Service improvements.

CEC op panel displays B1811404 for recovered error

- 1. Problem Description:** After a temporary CEC to RPC communication failure the CEC op panel will display B1811404 due to a microcode error
- 2. Potential Impact of Problem:** Unneeded RPC replacement
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 259445

LPAR file system can fill up due to On-demand Data Dump clean up

- 1. Problem Description:** Depending on the rate of errors that generate ODD dumps can be generated by base microcode, XRC and PPRC errors. The file system for /var can become full due to no clean-up of old dumps.
- 2. Potential Impact of Problem:** remote service required to remove dumps
- 3. Problem Severity:** Service
- 4. Pervasive Problem:** No

ID#: 274645

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Fire Host Dump volume fenced during background scan

- 1. Problem Description:** Fire Hose Dump volume is being fenced during the background scan of the CEC hard drives due to a microcode logic error.
 - 2. Potential Impact of Problem:** unneeded service action to unfence volume
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** Yes
- ID#: 277357

Failure deleting PAV alias volumes

- 1. Problem Description:** Deleting PAV alias volumes in parallel will fail and a warmstart will occur due to a microcode logic error.
 - 2. Potential Impact of Problem:** Unable to delete PAV alias volumes
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID#: 269207

TPCr FlashCopy performance slower with TPCr progress monitor

- 1. Problem Description:** TPCr progress monitor issues a large number of commands, each command in the CCW will be sent an separate response. Grouping the responses greatly reduces the overhead for each command.
 - 2. Potential Impact of Problem:** degraded FlashCopy performance
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID#: 269762

Improvements: Improvement for better usability

HMC responds to ICMP time stamp requests

- 1. Problem Description:** The HMC responds to time stamp requests which could be potential be used to defeat server authentication.
 - 2. Potential Impact of Problem:** Security breach
 - 3. Problem Severity:** Improvement
 - 4. Pervasive Problem:** N/A
- ID#: 277674

HMC heartbeat does not report failed call home.

- 1. Problem Description:** HMC heartbeat does not report a call home that has failed after 12 retries.
 - 2. Potential Impact of Problem:** Unreported serviceable event not included in heartbeat information.
 - 3. Problem Severity:** Improvement
 - 4. Pervasive Problem:** N/A
- ID#: 278747

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