IBM System Storage TS7700

TS7700 Release Notes – 8.41.100.15 (R4.1 GA)

Release Notes for the TS7700 (3957 VEC / VEB / V07)

EC: M13879 - released March 03, 2017 (revised June 27, 2017)

New Function Supported:

- 7/8 Way Grid (via RPQ)
- Quality Fixes

TS7700 Code Components:

Hydra	8.41.100.15 (EC M13879, PN 01PL209, 01PL210 (DVD 1 & 2))
DB2	10.5.0.5 Informational tokens: "DB2 v10.5.0.5", "s141128", "IP23626", and Fix Pack "5"
AIX Base Level	7.1.4.0 (Included under EC M13879)
AIX Fixpack	7100-04-01-1543+07
P8 Server Firmware	FW810.40
TS4500 (Anaconda) Firmware	1.3.0.5
TS3500 (Anaconda) Firmware	F030
3592 J1A Tape Drive 3592 E05 Tape Drive 3592 E06 Tape Drive 3592 E07 Tape Drive 3592 E08 Tape Drive	D3I0_C90 (Included under EC M13546A) or D3I0_C90 (PN 45E6140) D3I1_F1F (Included under EC M13546A) or D3I1_F1F (PN 95P8734) D3I2_883 (Included under EC M13546A) or D3I2_883 (PN 12X4428) D3I3_A88 (Included under EC M13546A) or D3I3_98B (PN 2726326) D3I4_68E (Included under EC M13546A) or D3I4_520 (PN 2726329)
TSSC	8.2.14 + Call Home Queue Patch (EC M13856, PN 2726424 (DVD 1))
TSSC Documentation	(EC M13856 PN 2726424)
3956-CC9/CS9/CSA Firmware Storage Manager GUI	08.20.21.00 11.20.0G05.0018 (EC M13614 PN2726417)
TKLM	TKLM v2 2.0.0.2, 2.0.0.5
ISKLM	2.6.0.0
Atape	13.0.8.0
GPFS	Release 4.1.1 PTF 7 code
OpenLdap	2.4.40
ITDT	9.0.1.20160222
AIX Diagnostics CD	V7.2.0.0 (EC M13546A, PN 2726118)
16Gbit Cisco Switch Firmware	BIOS level 2.1.17 Kickstart software level 6.2(9) System software level 6.2(9)
VTD EXECs required at activation (Note: later versions may be available via PFE web site; recommend that CE/SSR check at install time)	vtd_exec.188 vs 1.47 - Call Home fix vtd_exec.271 vs 1.02 - MI:7/8 Way grid improvements vtd_exec.272 vs 1.00 - 7/8 Way Grid LI REQ STATUS Grid fix vtd_exec.275 vs 1.02 - vpd updates for older code levels vtd_exec.277 vs 1.01 - Prevent several instances of cache config.script

Platform Requirements Matrix:

Test	Software Level
zOS	V2R1
zTPF	1.1
zVM	6.3
zVSE	5.1, 5.2, 6.1

Test Processor Support Matrix:

Code Name	Processor	Channel Speed
z9 EC	2094	2/4Gbit
z10 EC	2097	2/4/8 Gbit
z196	2817	8Gbit
z114	2818	8Gbit
zEC12	2827	8Gbit
zBC12	2828	8Gbit
z13	2964	8Gbit

Switch and Channel Extender Support Matrix:

Product Vendor and Model	Product Levels of Microcode supported	TS7700 levels of microcode supported
Brocade DCX IBM 2499-384 (SAN768B) Nortel 10Gb/sec MOTR card supported End of Support: 11/14/2019	7.4.0a, 7.4.1b	8.41.100.15
Brocade DCX-4S IBM 2499-192 (SAN384B) Nortel 10Gb/sec MOTR card supported End of Support: 11/14/2019	7.4.0a, 7.4.1b, 7.4.1d	8.41.100.15
Brocade 8510-8 IBM 2499-816 (SAN768B-2) Brocade 8510-4 IBM 2499-416 (SAN384B-2)	7.4.0a, 7.4.1b, 7.4.1d, 8.0.1b	8.41.100.15
Brocade 5300 IBM 2498-B80 (SAN80B-4) End of Support 8/21/2019	7.2.1d	8.41.100.15
Brocade 7800 IBM 2498-R06 (SAN06B-R)	7.4.0a, 7.4.1b	8.41.100.15
Brocade 6510 IBM 2498-F48 8, 16 GB/sec (SAN48B-5)	7.4.0a, 7.4.1b, 7.4.1d, 8.0.1b	8.41.100.15
Brocade 7840 IBM 2498-R42 (SAN42B-R)	7.4.0a, 7.4.1b, 7.4.1d, 8.0.1b	8.41.100.15
Brocade X6-4 IBM 8961-F04 (SAN 256B-6) Brocade X6-8 IBM 8961-F08 (SAN 512B-6)	8.0.1b	8.41.100.15

Switch and Channel Extender Support Matrix (continued):

Cisco MDS9506 IBM 2062-D04 IBM 2054-E04	6.2.5a, 6.2.5b, 6.2.11c/6.2.11d See note below for FTA	8.41.100.15
Cisco MDS9509 IBM 2062-D07 IBM 2054-E07	6.2.5a, 6.2.5b, 6.2.11c/6.2.11d 12, 24 & 48 port blades only See note below for FTA	8.41.100.15
Cisco MDS9513 IBM 2062-E11 IBM 2054-E11	6.2.5a, 6.2.5b, 6.2.11c/6.2.11d 12, 24 & 48 port blades only See note below for FTA	8.41.100.15
Cisco MDS9222i	6.2.5a, 6.2.5b, 6.2.11c/6.2.11d 12, 24 & 48 port blades only See note below for FTA	8.41.100.15
Cisco MDS9250i	6.2(11c), 6.2(11e)	8.41.100.15
Cisco MDS9710	6.2.5a, 6.2.5b, 6.2.11c/6.2.11d 12, 24 & 48 port blades only See note below for FTA	8.41.100.15

PROBLEM FIXES:
Problems fixed in this level are described below. There are 195 defects fixed in this release; 53 of them occurred or were related to problems in client installations. They are described below with the following designations:

HIPER = High Impact & Pervasive (3 or more occurrences)

High Impact = Loss of access or loss of data (less than 3 occurrences)

Acute = A unrecoverable error with potential loss of data

Serious = A unrecoverable error with potential loss of access to data

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

Service = A recoverable error, Service Improvements

Improvement = Improvement for better usability

Pervasive: problems with 3 or more occurrences

HIPER: Conflict in database calls caused cluster to restart unexpectedly
Dev fix description: Code logic change to remove conflicting processes
Pervasive: **YES**
Ref: 80969 (added in revision)

HIPER: Cluster code internally terminated critical process; cluster restart required
Dev fix description: Code logic changed to avoid process loss
Pervasive: **YES**
Ref: 81134 (impact modified in revision)

HIPER: Grid communication logic error caused grid communication to stop; cluster restart required
Dev fix description: Corrected logic for error and added more logging of activity
Pervasive: **YES**
Ref: 80962 (also fixed in vtd_exec.202 v. 2.02 and higher) – (impact modified in revision)

High Impact: Time sync loss between clusters caused unexpected cluster restart after sync regained
Dev fix description: Code logic change to improve time management
Pervasive: **YES**
Ref: 81142

High Impact: VPD component error recovery failed; cluster manual restart required
Dev fix description: Code logic improvement to avoid component hang
Pervasive: No
Ref: 82021

High Impact: VPD code restarted after error; after restart cluster was unable to re-connect to grid
Dev fix description: Improve error recovery in code component to validate grid connection
Pervasive: No
Ref: 81766

High Impact: Grid code was unable to pick a cluster to do a mount; cluster manually restarted to clear
Dev fix description: Improved code logic on selection to stop loop plus improved logging for diagnosis
Pervasive: No
Ref: 81528

High Impact: transmit failure in ethernet firmware caused cluster to restart unexpectedly
Dev fix description: Upgraded ethernet firmware component
Pervasive: No
Ref: 81471 (also fixed in VTD_EXEC.267 V. 1.1)

High Impact: File system error took machine offline but did not create sufficient logging for analysis
Dev fix description: Add logging and SIM creation for callhome to be generated
Pervasive: No
Ref: 81210

High Impact Failed recall of logical volume from physical volume left physical volume in mounted state; subsequent mounts of same physical volume fail
Dev fix description: Improve error recovery of physical volume so the next mount can complete
Pervasive: No
Ref: 81176

High Impact: Perm error on mounting logical volume following unexpected cluster restart (required development action to repair logical volume trailer labels)
Dev fix description: Improve error recovery to prevent failure following restart
Pervasive: No
Ref: 80271

Serious: Internal logic error caused invalid MI event to surface for cache size on TS7760
Dev fix description: Improve logic to report correct cache size
Pervasive: **YES**
Ref: 81704

Serious: Cluster restarted unexpectedly during installation of VTD_EXEC.182 (loss of access)
Dev fix description: Code logic change to eliminate condition which locked database
Pervasive: No
Ref: 81792 (also fixed in vtd_exec.182 V. 1.23)

Serious: Frame upgrade process stopped due to incorrect data format in process (extended outage)
Dev fix description: Improve data copying to new frame to avoid data format error
Pervasive: No
Ref: 81523

Serious: Two physical tape drives unable to be used after error recovery failed
Dev fix description: Improve error recovery to not have tape drive remain in error recovery
Pervasive: No
Ref: 81461

Serious: Database copy during grid merge larger than space allotted for restore (extended outage)
Dev fix description: Code logic change to check space prior to beginning process
Pervasive: No
Ref: 81266

Serious: Job abended after FICON adapter internal error
Dev fix description: Improved logic to eliminate internal firmware error
Pervasive: No
Ref: 81141

Serious: Job abends during DB2 reorg occurrence
Dev fix description: Enable additional monitoring switches in database management code
Pervasive: No
Ref: 81047

Serious: Cluster could not enter service state from error in managing tokens (extended outage)
Dev fix description: Code logic changed to allow service preparation to complete
Pervasive: No
Ref: 80994

Serious: Tape library error conditions caused cluster to have status of library incorrectly set to paused (stopped grid copies to cluster)
Dev fix description: Improved code logic so that copies will resume after library error condition cleared
Pervasive: No
Ref: 80374

Moderate: 10 Gb FCoE card not upgraded to newer firmware during replacement (caused performance problem)
Dev fix description: Upgraded firmware package for adapter to later level
Pervasive: No
Ref: 82000

Moderate: Control characters in message sent to host console – caused monitor program to terminate
Dev fix description: Special characters removed from message displayed on console
Pervasive: No
Ref: 81587

Moderate: Multiple duplicate LI REQ issued forced DB2 recovery of token data from other clusters
Dev fix description: Code logic change to prevent token deletion from multiple invocations of DR test
Pervasive: No
Ref: 81556

Moderate: construct not created automatically when not defined as done in prior levels
Dev fix description: Code logic change to remove side effect of logic change in R3.3 code
Pervasive: No
Ref: 81549

Moderate: Host (non-MVS) logical volume category 'FFFF' conflicts with use by LI REQ OTCNTL
Dev. fix description: Change code logic for LI REQ OTCNTL to use unused category
Pervasive: No
Ref: 81535

Moderate: Error condition set on offsite reclaim volume caused offsite reclaim to be suspended
Dev fix description: Code logic improvement to keep reclaim from stopping
Pervasive: No
Ref: 80973

Moderate: Security concern after scan identified exposure from version of NTP server
Dev fix description: Updated version of NTP (time protocol) component code
Pervasive: No
Ref: 80450

Moderate: vtd_check monitor process was stuck and caused invalid status to be shown on MI
Dev fix description: Improve monitoring and logging for debug of defunct process
Pervasive: No
Ref: 78406 (also fixed in vtd_exec.103 V 1.52 and higher)

Moderate: Use of 25 GB lvols in copy refresh constrained by fixed value for bulk recall limit
Dev fix description: Change code logic to allow modifying bulk recall limit via LI REQ
Pervasive: No
Ref: 77380

Service: Hardware checkout tool giving incorrect adapter count when 10 Gb FICON adapters installed as part of MES upgrade to model VEC
Dev fix description: Code logic changed to remove false error
Pervasive: **YES**
Ref: 81368

Service: Grid/DB2 data files not available for debug (not created unless manual command issued)
Dev fix description: Code logic changed to perform data collection process when error occurs
Pervasive: **YES**
Ref: 80703

Service: 10 Gb FCoE grid card (replaced at lower firmware level from stock) could slow performance
Dev fix description: Provide warning to CE that a reboot (to upgrade firmware) might be needed
Pervasive: No
Ref: 82038

Service: Missing data files after specific code component restarted
Dev fix description: Add collection of additional files after component restarted
Pervasive: No
Ref: 81538

Service: VPD logging too small for busier systems
Dev fix description: Increase logging space allocated
Pervasive: No
Ref: 81494

Service: Replaced DDM caused cache MES to fail
Dev fix description: Code logic changed to parse existing DDM's correctly
Pervasive: No
Ref: 81310

Service: Grid Link Errors reported against cluster in service state
Dev fix description: Logic code change to prevent invalid events on other clusters
Pervasive: No
Ref: 81061

Service: Missing data files after specific error condition occurred (after file created by error event)
Dev fix description: Add collection of debug files after component created them
Pervasive: No
Ref: 79159 (also fixed in VTD_EXEC.205 V. 1.03)

Service: LDAP service events don't clear automatically
Dev fix description: Code logic change to not flag intermittent LDAP network event
Pervasive: No
Ref: 79135

Service: Data files from physical drive errors missing from hydradump
Dev fix description: Add physical drive data files to hydradump
Pervasive: No
Ref: 79067 (also fixed in VTD_EXEC.205 V. 1.03)

Service: Diagnosing internal fiber channel speed on one DDM negotiation when incorrect difficult
Dev fix description: Improve display of incorrect speed so identifying specific ddm easier
Pervasive: No
Ref: 78377

Service: Core files from internal errors not included in hydradump
Dev fix description: Add code logic to include missing core files to hydradump
Pervasive: No
Ref: 74134 (also fixed in VTD_EXEC.205 V. 1.03)

Service: Missing data for analysis after hydradump taken
Dev fix description: Add network statistics file to hydradump collection process
Pervasive: No
Ref: 71070 (also fixed in VTD_EXEC.205 V. 1.03)

Improvement: Allow standalone cluster as copy source in grid to grid merge process RPQ
Dev fix description: Code logic change to remove check for standalone cluster
Pervasive: No
Ref: 81247

Improvement: Intervention required message posted during HOST IPL without any active MI event
Dev fix description: Code logic improved to eliminate auto-cleared event from posting to MI
Pervasive: No
Ref: 81139

Improvement: Excessive logging of errors from internal queue of messages
Dev fix description: Correcting code logic for error entry and added additional logging for clarity
Pervasive: No
Ref: 80536

Improvement: Grid - Grid RPC statistics are not available
Dev fix description: Add code for new LI REQ request to create data output
Pervasive: No
Ref: 80430

Improvement: MI display of virtual and physical mounts misleading
Dev fix description: Messages added to MI page to explain statistics being displayed
Pervasive: No
Ref: 79728

Improvement: Inconsistent feature code / model listings in Customer Info Center
Dev fix description: Correct Customer IC listings of feature codes / models supporting
Pervasive: No
Ref: 79250

Improvement: Copy queue spreadsheet did not include new copy types (copy refresh & family deferred)
Dev fix description: Code logic changed to add additional columns in file
Pervasive: No
Ref: 78527

Improvement: Client not able to set ownership takeover via LI REQ
Dev fix description: Add code to LI REQ process to allow ownership takeover
Pervasive: No
Ref: 76485

Improvement: Client unable to access lvol through devices in DR family member
Dev fix description: Add code to LI REQ process to allow volume access through DR family member
Pervasive: No
Ref: 75882

Improvement: Updates to copy types (copy refresh/family deferred) not displayed in copy queue .csv output file
Dev fix description: Code logic changed to add new copy types to .csv file
Pervasive: No
Ref: 75307

Improvement: Client unable to see when DDM rebuild in process (TPF affected)
Dev fix description: Add display of DDM rebuild task as event in MI
Pervasive: No
Ref: 72839