IBM System Storage TS7600 with ProtecTIER Version 3.4.4.0

Release Notes

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Introduction to Release Notes

Welcome to the release notes for IBM System Storage TS7600 with ProtecTIER Software version 3.4.4.0.

These release notes provide information about new features, resolved and open issues as well as special considerations and requirements for IBM System Storage TS7600 with ProtecTIER version 3.4.4.0.

This document contains installation and upgrade references to safely get to the latest release from past versions and other useful information.

See the **Additional documentation** section of this document for information about how to find ProtecTIER publications.

Code levels

This version comprises the following package levels:

Software	Version
ProtecTIER	3.4.4.0
Dtcemulex	5234_014
Ptlinux	7234_042
Ptrepmgr	6234_012

New features and resolved problems

ProtecTIER Server New Features:

Issue ID	Fix ID	Description
PTT-3085	81026961	Replication policies from VTL and FSI systems are now included in all profiles of a service report.
PTT-3084	81026961	Network interface cards and driver settings are now included in all profiles of a service report. Collected only on VTL systems.

ProtecTIER Server resolved issues:

Issue ID	Fix ID	Description
PTT-3198	81026949	Patch for mitigating Dirty COW (CVE-2016-5195) security vulnerability. This fix comes as part of the Red Hat update required to update to 3.4.4.0 and it's not included in the ProtecTIER code package.
PTT-3340	81026949	Fix for security vulnerability CVE-2017-14491. An attacker could send crafted DNS packets to dnsmasq which would cause it to crash or, potentially, execute arbitrary code.
PTT-3138	81026958	Fixed a problem where the incorrect setting of local WWNs, prevented main service VTFD to start automatically, leaving the system temporarily down.
PTT-3203 PTT-3141	81026965	Fixed a problem where the process of updating firmware levels was unsuccessful after failing to configure WWNs.
PTT-3145	81026980	Fixes a problem where on dual-node DD3, DD4 and DD5 models running 3.4, a missing package caused a negligible error message to output to physically attached screens (rsCerhmwticheck).
PTT-3150	81026980	Log rotation has been improved and now the size of CollectL logs will no longer fill up the root partition.
PTT-3067	81026961	Service report now collects different outputs for "ethtool" and "ethtool -i", instead of incorrectly collecting the same.
PTT-2893	81026883.3	PT Manager now allows a max throughput rate of 2950MB/s to configure repository.
PTT-3094	81026950 81026954	Support new Emulex card 98Y7957.
PTT-3088	81026951.3	Removed vNIC driver due to possible DD6 hangs.
PTT-3370	81026976.9	Fixed a storage stability problem related to repository disks suddenly going offline on TS7620 (SM2), commonly known as the "UNCONFIGURED_BAD" issue.
PTT-3361	81026977.1	Disabled a misleading software alert requesting the users to upgrade ProtecTIER to a newer version.
PTT-3374	81026979	Fixed a false alert about battery replacement raised during the relearn process (recalibration) of the Battery Backup Unit on DD4 and DD5 systems.
PTT-2783	81026944.3	MRPD report will no longer fail when launched from the PT Manager (GUI).

ProtecTIER Manager resolved issues:

Issue ID	Fix ID	Description
PTT-3112	51005862	Notification "For DD6 only" when choosing throughput above 2500MB/s on DD4 and DD5 systems has now been removed.
PTT-3114	51005863	Option to choose OST in the repository planner has been removed.
PTT-1971	51005864	The scheduler in the dialog box "Set Replication Timeframe" was not visible when logged in as ptoper and ptuser. Now these users can see the scheduler normally but still can't modify it.
PTT-2215	51005856	Fixed a problem where after logging in to the node and selecting the library view for the first time, port status was displayed incorrectly as DOWN.

Firmware levels

Before upgrading ProtecTIER Software on a DD6 machine, check to make sure that the system has the most current levels of firmware. To verify the current firmware levels, follow the instructions exactly as written in "**Checking the ProtecTIER 3958 DD6 Firmaware version**" in Chapter 4 of the User's Guide for VTL Systems (GA32-0922-14).

The latest levels are:

Component   :   Version

BMC: 2.0.006D
CPLD: 0.9.0001
BIOS: 0.3.0021
FLASH CONFIG: 0xB0C12970
DISRUPTIVE: 0x30E4C1D4

If your system is not running on these versions, it is extremely important to update the firmware as soon as the update to 3.4.4.0 is finished. Follow the instructions exactly as written in "**Updating the ProtecTIER 3958 DD6 Firmware**" in chapter 4 of User's Guide for VTL Systems (GA32-0922-14).

Upgrade considerations

Review the following guidelines and requirements prior to installing version 3.4.4.0:

- You must update Red Hat Linux to version **5.11.24** before updating ProtecTIER code to 3.4.4.0. Due to licensing and copyright restrictions, RHEL images are only available to registered customers via the Entitled Systems Support site. For full instructions about

how to download the Red Hat image from ESS site, go to the document named "How to download RHEL 5.11 from ESS" available in Fix Central together with this release notes document.

- ProtecTIER Manager version 3.4.4.0 is highly recommended.

- For updates or patch packages, a lower version of ProtecTIER code must be already installed; fresh installs using an update or patch package on a clean Red Hat Linux OS system will fail.

- ProtecTIER version 3.4.X is no longer supported on TS7650 Appliance (3958-AP1), TS7610 Appliance Express (3959-SM1) and TS7650G 3958 DD3 servers. These machines must not be upgraded to version 3.4.

- ProtecTIER version 3.4.X no longer supports OST. Systems with OST enabled must not be upgraded to version 3.4.4.0.

Installation Instructions

The Installation Roadmap Guide contains complete installation instructions for TS7650G systems:

IBM TS7650G ProtecTIER Deduplication Gateway for ProtecTIER 3.4 Installation Roadmap Guide (GA32-0921).

The installation procedures that are described in that document are for IBM service personnel only. They include instructions for installing, cabling, and configuring the TS7650G servers and any hardware components that are included in the purchase of the TS7650G.

Upgrading the ProtecTIER software

For TS7650G, use the "IBM TS7650G with ProtecTIER Software Upgrade Guide" (SC27-3643-12) and choose the appropriate option according to the code version of your system and the upgrade method of your choice.

Upgrading the ProtecTIER code can be done through the graphical user interface (preferred method) or the service menu in the command line.

For the GUI method, go to the following chapter in the Upgrade Guide (works for all versions):
-Chapter 5. Upgrading the ProtecTIER software to 3.4.x from version 3.3.x using ProtecTIER Manager.

To use the service menu, go to the following chapter in the Upgrade Guide (works for all versions):
-Chapter 9. Applying the V3.4.x fix pack to the ProtecTIER servers.

Depending on the version installed on your system, a few actions must be performed before finally updating to 3.4.4.0. The following options might be available:

- Upgrading a TS7650G system to version 3.4.x from version 3.3.x. (Option A)

  Before you can upgrade the ProtecTIER software to version 3.4.x from 3.3.x, you must first upgrade to the appropriate version of Red Hat Enterprise Linux 5.11 following the procedure in Chapter 8, "Upgrading Red Hat Linux and ProtecTIER version 3.4.x for servers at version 3.3.x".

- Upgrading a TS7650 system to version 3.4.x from version 3.1.8 or higher. (Option B)

  Upgrading to version 3.4.4.0 from version 3.1.8 or above is a two-step process, you need to first upgrade to a latest 3.3 version (version 3.3.7 and above is recommended) for which a full Red Hat Linux upgrade IS NOT required. Finally, continue as in Option A.

- Updating a TS7650 system already on version 3.4 to version 3.4.4.0. (Option C)

  Before you can update to 3.4.4.0 from any previous version of 3.4, you must first upgrade to Red Hat Enterprise Linux 5.11 version 24 following the procedure in Chapter 8, "Upgrading Red Hat Linux and ProtecTIER version 3.4.x for servers at version 3.3.x".

Restrictions and known issues

Restrictions and known issues include the following:

Issue ID	Description	Workaround
PTT-2810	The health check reports the BMC module with an error after removing one memory DIMM	The workaround is to cold reset the BMC using the following command: # ipmitool bmc reset cold
PTT-2906	Cannot change BMC admin password using web GUI controller	From the command line issue the following command: # ipmitool user set password
PTT-2581	On FSI with version 3.4+ code, eth2 is lost after canister replacement	Reboot the server after finishing the replacement
PTT-997	Following upgrade / node replacement / HBA MES, PT drivers might not be accessible	Contact Support for manual workaround Manually_change_WWN_of_PT_FE_ports (Internal link)

	due to wrong WWN configuration	

- Before performing any configuration operation, upgrade both nodes to the same patch level.

- Do not move a cartridge from the shelf of the remote repository while it is the target of a replication operation.

- FSI Replication between repositories in v3.2.x and v3.3.x is supported only from 3.2.2.0 and above.

- The table below represents the recommended maximum number of concurrent streams with FSI Backup and Restore functions. Exceeding these limits may result in performance degradation which, under extreme conditions, could lead to timeouts in your backup jobs.

  The maximum number of recommended concurrent streams is specified as a byproduct function of the repository configured Metadata and User Data configuration throughput. Therefore, this requires careful planning and consideration.

  It is recommended that you don't exceed this number.

Repository throughput [1]	Number of streams
TS7620 3959-SM2 base [2]	20 streams
TS7650(G) - 100-200MB/sec & TS7620 with 1 EXP	40 streams
TS7650(G) - 200-300MB/sec & TS7620 with 2 EXP	64 streams
TS7650(G) - 300-450MB/sec	96 streams
TS7650(G) > 450MB/sec	192 streams (max # supported) [3]

NOTES:
1. Both the required Metadata and User Data RAIDs must be configured to support the desired throughput.
2. No systems (Gateway) should be configured for less than 100MB/sec.
3. For NetBackup, the max number of supported jobs is 128.

- From version 3.4, all upgrades on any ProtecTIER system having less than 64GB RAM will require double reboot. This behavior is required as part of the solution for a memory fragmentation issue. As a result, the max drives limitations were modified as shown in the following table:

ProtecTIER System RAM	Number of max drives
48 GB (TS7620-SM2)	128 drives
64 GB (TS7650G-DD4 & DD5)	256 drives
128 GB (DD6)	256 drives

NOTICE: The maximum number of drives is modified only in cases where the current system defined number of drives is less than or equal to the new desired max value. In cases where the system already has more drives defined than the desired new max, a new max value will be set to align with the existing settings (at a boundary of 32). For example: if the ProtecTIER system has 32GB RAM and 140 drives defined, then the new max value will be set to 160.

Compatibility

Compatibility requirements include the following:

- Newest Red Hat Linux OS 5.11 version 24 and ProtecTIER versions before 3.4.4.0 are not compatible.

- ProtecTIER version 3.4.4.0 does not support attachment to the TSSC feature on the 3958-DD6 server. Therefore, TSSC must be detached from 3958-DD4 and 3958-DD5 prior to replacing them with the 3958-DD6 system. However, the 3958-DD4 and 3958-DD5 systems continue to support attachment to the TSSC for the version 3.4 ProtecTIER release.

- ProtecTIER version 3.4.4.0 is compatible with ProtecTIER Manager versions older than 3.4.4.0 but updating to the latest version is encouraged.

- ProtecTIER Manager earlier than version 3.4 is not compatible with ProtecTIER Server version 3.4.4.0, therefore, communication between the two will fail.

- Replication is supported from ProtecTIER v2.4 or later. SMB v2.1 systems are also supported.

- Replication between ProtecTIER v2.3 and ProtecTIER v3.1.8 and above is NOT supported.

- Replication configuration operations require the use of Replication Manager version 3.4 or later ProtecTIER software.

Compatibility matrix:

To download the latest matrix, navigate to the following page on your web browser and click on the download link:

https://www.ibm.com/support/knowledgecenter/en/STLPPL_ent/isv/ts7650_s_isv_support_matrix.html

Additional documentation

To access the additional documentation:

- On a web browser, navigate to https://www.ibm.com/support/knowledgecenter/
- Search for the keyword 'ProtecTIER'

GUI license files can be found in the "License" folder under PT Manager installation location. For example: *C:\Program Files\IBM\ProtecTIER Manager\license*

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