Exos® Protect 4006 Series
I200R007 Release Notes

Part Number 205036300-04, D • July 2026

Description

This package delivers I200P007-02 firmware for Exos Protect 4006 Series storage enclosures.

Supported upgrade paths

You may upgrade *to* this firmware bundle from I200R004-07, I200P005-02, or I200R005-09 controller firmware. Direct upgrade from older controller firmware is not supported. If you have older controller firmware, please contact Seagate Support to determine the required steps to upgrade to I200P007-02.

Supported downgrade paths

You may downgrade *from* this firmware bundle to I200R004-07, I200P005-02 or I200P005-09.

To do so, contact technical support for directions.

Controller replacement

If you are using controller firmware older than I200P007-02 and need to replace a controller, *before* replacing the controller, disable PFU and contact Seagate Support for directions.

Operating systems

Supported operating systems include:

- Microsoft Windows Server 2022
  Microsoft Windows Server 2019 Hyper V
  Microsoft Windows Server 2019
  Microsoft Windows Server 2016 Hyper V
  Microsoft Windows Server 2016
- Red Hat Enterprise Linux 8.5
  Red Hat Enterprise Linux 8.2
  Red Hat Enterprise Linux 7.8
- SuSE Linux Enterprise Server 15 SP2
  SuSE Linux Enterprise Server 12 SP5
- VMware ESXi Server 7.0
  VMware ESXi Server 6.7

- Citrix Hypervisor 8
  Citrix XenServer 7

Installation instructions

To install this firmware by using either the Storage Management Console (SMC) or the SFTP/FTP interface, see the *Seagate Exos Protect 4006 Series Storage Management Guide*.

New features or enhancements in I200P007-02

- Before starting a firmware update, the SMC warns users to ensure all hosts are connected to host ports on both controllers to maintain data availability.
- Redesigned certificate management functionality. For information about managing certificates, see the Storage Management Guide and CLI Reference Guide.
- Added support for Kioxia disk drive firmware files (`.std` extension).
- Enabled support for Kioxia and Toshiba FIPS disk drives.
- Added an option to force immediate Storage Controller shutdown. In the CLI this is the `shutdown override-shutdown-delay` parameter. In the Storage Management Guide this is the **Force Shutdown SC** option. For a dual-controller system, this overrides a block (maximum 15-minute delay) that the system imposes to prevent shutting down a controller while its partner is already shutting down, which can interfere with failover/failback. For details see documentation for the CLI `shutdown` command or Storage Management Guide **Maintenance** > **Hardware** panel.
- In the Redfish API, enhanced `StartUpdate` to allow activation of any firmware image in the storage system.
- Added the ability to see information about fenced data blocks in the storage system. Fenced data blocks are blocks of data on disk which cannot be recovered and have been lost. For details see documentation for the CLI `show fenced-data` command.
- In SFTP/FTP, added the ability to stop and start in-drive bus trace (IBT) for Seagate drives. For syntax, in the SFTP/FTP interface see online instructions for getting a disk debug dump.
- For 5U84 enclosures, improved diagnostic information for SAS path diagnostic data.
  - Added SAS connection descriptions in event 610 and new event 612.2. The descriptions specify the number of ports in the expander, where the expander is located in an enclosure, and which IOM is connected.
  - Added properties to `show expander-status` output, including the drawer location, expander name and location, and whether the expander has a high error count relative to its peers. For details see documentation for that command.
  - Factored SAS path health into system health and added alerts 296, 298, 299, 3009, 3010 and event 61.4.
  - Added output of the `show sas-link-health` command to log-collection output.
- In the SMC **Volumes** panel, added the option **Show Volumes Only** to hide snapshots if any exist.
- Added the ability to configure email notifications using TLS with no password.
- In the CLI, added the ability to allow or prevent the creation of default mappings for new volumes. When default mapping is enabled and you create a volume without explicit mappings, the system will automatically map the volume with a single LUN to all current and future initiators. For details see documentation for the `set advanced-settings` command's `default-mapping` parameter.
- Improved handling of staggered restarts in dual-controller configurations to prevent potential data loss due to cache inconsistencies. Enhancements include implementing a staggered restart state system, adding a force option and an

override restart delay parameter to the `restart sc` command, and ensuring better coordination between system components. Additional improvements refine error handling, improve reboot distinction between standard and code load scenarios, and ensure seamless recovery process.

- Added support for Seagate FIPS 140-3 disk drives.
- Implemented security improvements.
- Upgraded OpenSSH to v10.0p2 and OpenSSL to v3.5.0.

Fixes and other changes in I200P007-02

- Fixed issues where systems reported suddenly reported multiple correctable and uncorrectable ECC errors without prior ECC errors being reported. Added events 690, 691, 692.
- For 5U84 enclosures, fixed a crash that occurred during sideplane firmware update.
- Disabled support for IPv6 addresses in the CLI `ping` command to meet USGv6-R1 compliance.
- In the SMC **Controller Restart and Shut Down** dialog, if the user specifies to restart or shut down both Storage Controllers, the respective force option is now disabled.
- For 5U84 enclosures, fixed an issue where turning on the enclosure LED via the SMC or the CLI did not turn on the front panel LED on the chassis.
- Fixed an issue where CSV files output by the SFTP/FTP `get logs: heatmap` command could not be opened in Microsoft Excel.
- Change the CLI `show disk-statistics` command from showing the amount of data read/written in a disk's "lifetime" to the amount in the current "session" (before disk statistics are cleared).
- In the SMC, fixed an issue where, after a remote replication operation, the pool's unused space value showed 0 instead of the actual remaining space.
- Fixed an issue where snapshot creation impacted system performance.
- In the SMC, fixed an issue where, for a volume mapped to a host with no nickname, the **Delete Volumes** dialog's **Attached Hosts** property was blank instead of showing the host ID.
- Fixed issues with collecting logs from the partner controller when running the CLI `show metrics-list started` command.
- Corrected input validation for the DNS hostname value to allow special characters, including periods, but not hyphens.
- Fixed an issue where an inconsistent number of blank lines appeared before the success message in CLI commands.
- Fixed an issue where Management Controller network parameters reverted to uninitialized values.
- Fixed an issue where after restarting both Storage Controllers, all volumes on a controller became unmapped.
- Fixed an issue where trying to remove 1 less than the number of hosts in a host group erroneously displayed an error.
- Fixed an issue where a replication snapshot failed to be created.
- Enabled the CLI `show host-phy-statistics` command to work for FC and iSCSI host ports, in addition to SAS ports.
- Fixed an issue where using the character pair `${` in several parameters caused audit logs to display a message that no response was received from the Storage Controller. UI input validation has been changed to prohibit that character pair.
- Changed the SMC to display a warning prompt if a user tries to create a RAID 5 or RAID 6 disk group with a non-"power of 2" number of disks.
- Fixed an issue where managed logs email notifications were not received when using TLS protocol.

- Fixed a issue where canceling the CLI `delete pools` command caused an error message to appear twice.
- Fixed an issue where creating a volume the exact size of a pool incorrectly reported the pool was overcommitted.
- For user creation, modified username input validation to prohibit the characters `\ , < > ' " :` and space.
- Improved the error message that appears when a snapshot cannot be created due to insufficient space in the pool.
- Clarified the error message that appears if `set snmp-parameters del-trap-host` specifies an invalid host address.
- Fixed an issue where, after creating a volume with the `Use Remaining Space` option selected, the user could not subsequently reduce the volume size.
- Fixed an issue where running `set host profile` caused the system to become temporarily unresponsive and the host profile did not change.
- Fixed an issue where volatile storage in a `Secured, Locked` state changed to nonvolatile when `set fde-lock-key` was run with an incorrect passphrase.
- In the SMC, for email notification, modified sender password input validation to prohibit only the characters `< > \ , ' "` and allow the character `!`.
- Fixed an issue where, when the email notification protocol was set to None, users could not set or change other email notification parameters.
- Fixed issues where event 612 reported the wrong location of a disconnected drawer sideplane SAS cable and omitted details about the port expander.
- Fixed an issue where a virtual disk group auto-dequarantined but its storage pool remained offline.
- Fixed an issue where the next run time for a replication schedule was invalid so replication didn't run.
- Fixed an issue where a bad drive caused a controller crash and all disk groups to enter QTOF state.
- Fixed an issue where an unrecognized volume appeared, which was caused by stale metadata.
- Fixed an issue where controllers repeatedly restarted with a debug error.
- Fixed an issue where snapshot schedules were not running.
- Fixed an issue where, on rare occasions, hot-adding an expansion enclosure to a secured system left one drive unsecured.
- Fixed an issue where a data center brownout caused disk groups in expansion enclosures to go offline, requiring the enclosures to be power-cycled to come back online, which left some drives in leftover state.
- Fixed an issue where repeated power cycles of 5U84 systems in a short space of time would result in errors with the CLI `show disk-statistics` command.
- Fixed an issue where accessing the SMC displayed "the application is loading..." but the SMC didn't load.
- Fixed a volume-renaming issue by changing the CLI and the SMC to consistently limit volume names to 32 (1-byte) characters and replication-set names and snapshot names to 24 (1-byte) characters.
- Fixed an issue where hedged-read errors contributed to controller crashes and performance issues.
- Fixed an issue where a controller encountered an "illegal access to memory" error and a reset occurred on the partner controller, resulting in data unavailability.
- Fixed an issue where users were unable to get Storage Controller logs on a system using FIPS drives.
- Fixed an issue where, for a snapshot of a volume, the snap data size shown by the CLI `show snapshots` command did not match the allocated size shown by the CLI `show volumes` command.
- Fixed an issue where all used SAS host ports frequently reported PHY error count event 663.
- Fixed an issue that could cause the SMC to list static IPv6 addresses in a different order than the CLI.
- Changed the SMC to correctly display default spare capacity value for SSDs, to 2 decimal places.

- Fixed an issue where events incorrectly reported that a 5U PSU FRU was not installed.
- Added a check to prevent the system from adding components to a pool that is in a degraded state.
- Disabled unnecessary Intelligent BackEnd Error Monitor (IBEEM) logging.
- Changed the timezone format in syslog timestamps to comply with RFC 5424; for example, from 2025-07-17T21:37:09.0000005:30 to 2025-07-17T21:37:09.000000**+**5:30. Also, fixed an issue that prevented syslog notification from working when email notification was disabled.
- In the SMC, fixed an issue where setting the system time to AM showed the time as PM instead.
- Fixed a memory pointer issue.
- In the SMC, fixed an issue where the **Maintenance > Storage > Pool > Job** field did not show job information for the pool.
- Fixed an issue where `show firmware-update-status` indicated firmware update failed even though it completed successfully.
- Fixed an issue where after adding or removing a host, a host group lost a volume mapping.
- Fixed an issue where a user was unable to recover a system from the FDE state `Secured, Lock Ready`. Now, if any drive is locked state, the system will transition to the `Secured, Locked` state to allow FDE commands to execute.
- In the SMC, modified IPv6 label input validation to prohibit the characters `> , ' :` and the character pair `${`.
- In the SMC, fixed a variety of display and behavior issues such as improper button states and overlapped fields.
- In the SMC, fixed snapshot name validation to match the CLI by prohibiting the characters `\ , < > ' " :` and the character pair `${` for consistent input handling.

Fixes and other changes in I200P005-09

- Fixed an issue affecting virtualized environments, preventing potential data corruption and ensuring reliable system performance.
- Added support for non-Seagate disk drives.
- Fixed an issue with the supercapacitor charging circuit in systems enclosures to reduce the noise on the supply voltage when measuring or charging the supercapacitor. New informational events 690, 691 and 692 will be logged at every controller restart. For event details, see the Event Descriptions Reference Guide.
- Fixed CVE-2023-48795 to remove weak ciphers and KEX algorithms. This release will only support the following for SSH/SFTP connections:
  - MACs hmac-sha2-512-etm@openssh.com,hmac-sha2-256-etm@openssh.com,umac-128-etm@openssh.com
  - KexAlgorithms curve25519-sha256,curve25519-sha256@libssh.org,sntrup761x25519-sha512@openssh.com

  You must configure your SSH/SFTP client to use one of the above in order to access the storage system via SSH/SFTP.

New features or enhancements in I200R005-02

- Added the ability to schedule media scrub operations for disk groups. Removed the ability to set the duration/interval for scrub operations, which is now automatically calculated. Removed the ability to scrub individual disks in favor of scrubbing disk groups.
- Implemented security enhancements.

- For certificate management, removed the old CLI commands `show certificate` and `create certificate`. Equivalent CLI commands are `show certificates` (plural) and `create certificate-signing-request`.
- Added the ability to configure the system's time zone. Based on the time zone, the system clock will automatically adjust for daylight saving time (DST).

Fixes and other changes in I200R005-02

- Fixed an issue where a user was unable to create more than 2 disk groups per controller.
- Fixed an issue where a single-ported drive health condition prevented firmware update from progressing.
- Fixed an issue that caused a time synchronization error between controller modules.
- Fixed an issue that displayed an error for valid characters ' and > in a peer connection name, a replication set name, or secondary volume name.
- Fixed an issue that caused a disk group to become quarantined after disk firmware updates.
- Increased email and local-user password length to 64 bytes.
- Fixed an issue where a rebalance job was running on a disk group but its pool was offline.
- Fixed an issue where a single snapshot tree mapped too much logical space, resulting in insufficient memory to perform operations to take, reset, or delete snapshots.
- Fixed an issue where after replacing a failed drive in an ADAPT disk group, rebalance completes but the actual spare capacity value did not adjust to match the target spare capacity.
- Fixed an issue where the Storage Controller became unresponsive when creating large disk groups in "offline mode."
- Fixed an issue where a SAS cable fault was detected for the wrong drawer in a 5U84 enclosure.
- Fixed an issue where in a dual-controller system, a single controller crash resulted in data unavailability.
- Corrected the health recommendation for an enclosure midplane reported as unhealthy with reason "A midplane SGPIO bus failure was detected."
- Fixed an issue where using the SMC to schedule local snapshot creation failed.
- Fixed an issue where, when using the **Create Volumes** wizard in the SMC, the **Use Remaining Space** checkbox could be set for controller A but was grayed-out for controller B.
- Fixed an email notification issue where if multiple email addresses were configured, only the first address succeeded.
- Fixed an issue where a copyback operation did not start until the user ran a manual rescan.
- In the SMC and CLI, ceased showing license information for the SRA and VSS host-software components, which don't require a Seagate license.
- Fixed an issue where, in the SMC, a user could not create and delete a host group name containing a space.
- Fixed an issue where, in a 5U84 system, installing I200R004 succeeded but upgraded only a subset of sideplanes.
- Fixed an issue where, via FTP, IOM firmware could be installed to the connected IOM but not to an IOM on the alternate path.
- Fixed an issue where a controller heartbeat was lost and the Management Controller was inaccessible.
- Optimized paged-storage allocation to avoid fragmentation, especially when snapshots are used, to improve performance.
- Fixed an issue where memory exhaustion errors caused the controller to restart.
- Fixed an issue in where, after replacing a faulty drive in a 5U84 enclosure, the drawer and enclosure fault LEDs remained lit.

- Fixed an issue where a virtual pool was offline because a metadata volume was unreadable or missing.
- Fixed an issue in the SMC where performance graphs did not load when using an LDAP account.
- Fixed an issue in the SMC where users were unable to view system IOPS and latency graphs.
- Fixed an issue where a disk group and pool went offline after drive replacement.
- Fixed an issue where, of 4 paths from a host to volumes, 2 paths had correct data and 2 had incorrect data.
- Fixed an issue where power-cycling a 5U84 enclosure resulted in a pool fault.
- Fixed an issue where DNS server logs showed systems sent many queries for their own A (host address) and AAAA (IPv6 address) records.
- Fixed an issue where a 5U84 system reported intermittent alert conditions for fans.
- Improved handling of EMP alerts in the case of a GEM expander soft reboot.
- Fixed an issue in the SMC where, after the current replication completed from the primary system, replication information disappeared from the volume's **Replications** tab.
- Fixed an issue where trying to add the same remote system to an existing peer connection caused the SMC to hang, requiring a browser refresh.
- Fixed an issue where setting DNS hostnames using only uppercase letters failed.
- Fixed an issue where after shutting down a system, both controllers entered a restart loop.
- Fixed an issue where event 658 was logged too frequently.
- Fixed an issue where a system using FDE could not transition out of Secured, Lock Ready state.
- Fixed an issue where after power-cycling a system, four drives went into a Secured, Locked state which caused several diskgroups to become degraded.
- Made firmware changes to improve performance.
- Made firmware changes to allow creation of 4 ADAPT disk groups of any size per controller.
- Fixed an issue where a system's iSCSI replication connection occasionally became disconnected and reported a CAPI hang event.
- Removed CLI remote-system commands.
- The FA MIB 2.2 SNMP event section (connUnitEventTable) is no longer supported.

Known issues and workarounds

Issue: In CLI help text for the `remove ipv6-address` command, index values for controllers are listed as 0 to 3 but the actual values should be 1 to 4. **Workaround:** Use index values from 1 to 4.
Issue: In SMC help, some text is missing from translated (non-English) content. **Workaround:** Use English version if possible.
Issue: The downloaded CSV file for heatmap information is an invalid file. **Workaround:** Review the heatmap in the SMC.
Issue: Codeload failure. **Workaround:** Retry installing the firmware bundle, then check the firmware update status by running the CLI command `show firmware-update-status`.

Issue: After Firmware update from I200R002-03 or I200R002-04 to I200R004, the storage system could show degraded health or show the data path as not redundant. **Workaround:** Restart the storage system.
Issue: SAS thread exception due to invalid pointer. **Workaround:** Power cycle the system to recover.
Issue: Using the SMC, firmware upgrade from I200R002-03 to I200R005 shows success, but fails. **Workaround:** Either: • Use FTP to perform the firmware upgrade. • Use the SMC to upgrade from I200R002 to I200R004 and then to I200R005.
Issue: Firmware downgrade from I200R005 or I200R004 succeeds but should be blocked. **Workaround:** None; downgrade not recommended.
Issue: A FIO failure occurred during a controller pull test, reporting a host-link error with a Dell 465e HBA. **Workaround:** None
Issue: I/O paused when plugging in a cable, using a Dell 465e HBA. **Workaround:** None
Issue: A FIO failure occurred when reinserting a controller. **Workaround:** None
Issue: In Chromium-based browsers including Google Chrome and Microsoft Edge, the WBI login page may take up to 2 minutes to display due to SSL-negotiation issues. **Workaround:** None.

© 2026 Seagate Technology LLC or its affiliates. All rights reserved. Seagate, Seagate Technology, and the Spiral logo are registered trademarks of Seagate Technology LLC in the United States and/or other countries. Exos is either a trademark or registered trademark of Seagate Technology LLC or one of its affiliated companies in the United States and/or other countries. All other trademarks or registered trademarks are the property of their respective owners. When referring to drive capacity, one gigabyte (GB) equals one billion bytes, one terabyte (TB) equals one trillion bytes, and one petabyte (PB) equals one thousand terabytes. Your computer's operating system may use a different standard of measurement and report a lower capacity. In addition, some of the listed capacity is used for formatting and other functions, and thus will not be available for data storage. Actual data rates may vary depending on operating environment and other factors, such as chosen interface and drive capacity. The export or re-export of Seagate hardware or software is regulated by the U.S. Department of Commerce, Bureau of Industry and Security (for more information, visit www.bis.doc.gov), and may be controlled for export, import and use in other countries. All coded instruction and program statements contained herein remain copyrighted works and confidential proprietary and trade secret information of Seagate Technology LLC or its affiliates. Any use, derivation, disassembly, reverse engineering, dissemination, reproduction, or any attempt to modify, prepare derivative works, reproduce, distribute, disclose copyrighted material of Seagate Technology LLC, for any reason, in any manner, medium, or form, in whole or in part, if not expressly authorized, is strictly prohibited. Seagate reserves the right to change, without notice, product offerings or specifications.

For the latest regulatory and compliance information see www.seagate.com/support. Scroll down to the Compliance section.