



ATTO Technology, Inc.

## Product Release Notes

# FastStream SC Firmware Release v4.60

## 1. General Release Information

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These product release notes define the new features, changes, known issues and release details that apply to FastStream Storage Controller firmware version 4.60, which was released on 4/15/2014.

## 2. Changes

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- **Version 4.60 (Released 4/15/14)**
  - **New Firmware Features**
    - Hardware RAID 50 Support
      - Combines block level striping of RAID 0 with distributed parity of RAID 5. At least 6 drives are needed to set up a RAID 50 Group.
    - Hardware RAID 60 Support
      - Combines block level striping of RAID 0 with distributed double parity of RAID 6. At least 8 drives are needed to set up a RAID 60 Group.
    - Support for 112 drives in a RAID 50 or 60 Group via multiple RAID 5 and RAID 6 Axles
    - 16 spaces available for Hot Spare devices.
    - Update to the SNMP MIB to support RAID 50 and 60
- **Version 4.57 (Released 11/5/13)**
  - **New Firmware Features (FastStream 8550 only)**
    - The maximum FC initiator count has been increased to 96
    - Improved Faulted RAID Group member handling
    - DriveAssure™ timeouts have been improved for RAID 5 and RAID 6
    - Descriptor-based SCSI SENSE data is now supported by the FastStream 8550
    - Fixed an issue where a Fibre Channel port may lock up under load
    - Improved ABORT TASK SET handling
    - Improved how the Intel-based SAS layer handles failed disk drives
    - Improved logging for bad command completion scenarios
    - Improved logging for disk exception events (Logs disk SN instead of SAS WWN)
    - Fixed issue where ExpressNAV SES Monitor page may report incorrect slot information
- **Version 4.55 (Released 2/7/13)**
  - **New Firmware Features**
    - **ExpressNAV Storage Manager 3.0** An update of the remote management interface for FastStream includes a more modern look and easier access to functions on the FastStream making management & monitoring of attached storage more efficient.

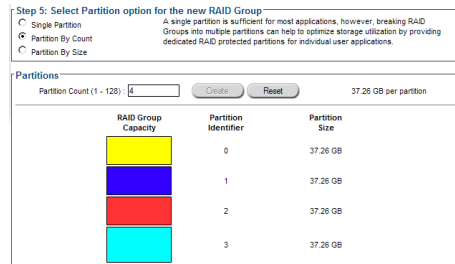


- **Increased resources for Fibre Channel ports** which helps maintain performance when more than eight users are accessing storage attached to the FastStream.
  - **Improved MultiPath Director™ compatibility with ATTO Config Tool for Celerity Fibre Channel HBA's.** When FCmultinode is disabled, a FastStream processor LUN has been added to allow system identification when used with MultiPath Director. In the Config Tool, the FastStream name will now be displayed under the MultiPath Director tree with RAID Groups listed underneath. \*Note that this feature requires the new version of ATTO Config Tool for Celerity which will not be available until Early March 2013.
- **Incident Resolutions, Enhancements and Feature improvements**
  - **Improved ASTEK 6Gb expander interoperability** to allow JBOD storage and enclosures which use this brand of expander to work with FastStream.
  - **Improved interoperability with Quantum StorNext and Apple Xsan** with unique naming to make it easier to identify multiple LUNs of FastStream based storage.
- **Version 4.50 (Released 11/7/12)**
  - **New Products**
    - **Version 4.50 introduces support for a new model to the FastStream product family with a new high-speed Fibre Channel interface for high performance storage needs.**
      - **FastStream SC 9000 / 9000E** – This model features 16Gb Fibre Channel host connectivity. The 9000 supports up to 128 SAS and SATA disk drives and provides the same robust feature set that exist in the 5550 and 8550.
- **Version 4.30 (Released 3/8/12)**
  - **Note:** *Once upgrading to 4.30 you will only have the ability to back-flash to v4.30, flashing to prior versions is not possible. Please backup your event log as there have been changes that will clear the event log when flashing to v4.30.*
  - **New Firmware Features**
    - SNMP support
    - IPv6 compatibility with QuickNAV
    - Updated Fusion network stack
    - Drive Performance and Health Drive Info page have been updated to display a filtered version of the event log.
  - **New Default Settings**
    - **PassThroughMode** - PassThroughMode is now enabled to all by default.
    - **AutoMapOnBoot** - Auto Mapping Drives on boot CLI command added; disabled by default.

- **Version 4.20 (Released 8/11/11)**
  - **Note:** *Once upgrading to 4.20 you will only have the ability to back-flash to v4.20, flashing to prior versions is not possible. Please backup your event log as there have been changes that will clear the event log when flashing to v4.20.*
  - **New Firmware Features**
    - **New Email Alerts** have been added to provide improved feedback when critical, informational or warning conditions occur.
    - **SES Slot to disk mapping** is now supported via CLI
    - **Improved automatic mapping functionality for pass-through devices** so that all ports are equally used when mapping these devices
    - **Disk Write Caching** is now an option when setting up RAID Groups. This allows users to set up maximum performance (with Caching enabled) or maximum protection (with cache disabled). This feature is useful when using CacheAssure™.
    - **Onboard Alarm Status** is now displayed on the ExpressNAV™ Monitor webpage.
    - **The ExpressNAV GUI** was updated with several tool tips and also had a reduction in overall text displayed on several of the interface webpages.
    - **ATTO DriveHealth** is now supported from the ExpressNAV GUI and provides SMART data for SATA drives and Medium Defects or Informational Exceptions for SAS drives.
    - The latest browsers from **Microsoft (Internet Explorer), Mozilla (Firefox) and Apple (Safari)** have been tested as interoperable with ExpressNAV.
  
- **Version 4.06 (Released 3/11/11)**
  - **Note:** *Once upgrading to 4.06 on the 8550 you will only have the ability to back-flash to v4.05, flashing to prior versions is not possible.*
  - **New Firmware Features**
    - **DriveHealth** functionality has been added via CLI. This feature provides access to drive data which may help estimate the drive health of SAS or SATA disk drives. This data is provided through SMART, Medium Defects or Informational Exceptions, results are subjective and may vary by manufacturer.
      - 3 CLI commands were added to support this functionality; DriveHealth, DriveHealthStatus and DriveHealthDisplay.
    - **Performance Improvements** have been rolled in to the FastStream from ATTO's Universal Virtual Device Architecture (UVDA) for the ExpressSAS RAID Adapter. In lab testing this has shown improvement on writes when using SAS and SATA drives.
  
- **Version 4.05 (Released 2/18/11)**
  - **Note:** *Once upgrading to 4.05 on affected dual boot platforms (5550, 8250, 8550), back-flashing to previous firmware releases is no longer possible.*
  - **New Firmware Features**
    - **Dual Flash ROM Images** for greater reliability when flashing new firmware on the FastStream. The FastStream will revert to the previous image in memory in the event of a failed firmware update.
    - **User Selectable Firmware Images** allows users to manually revert between the current and previous version of firmware in the event of system instability after upgrading to a new version of firmware.
  - **New Default Settings**
    - **Interleave** – Interleave size now defaults to 256KB when creating new RAID Groups
    - **FC Connection Mode** - Default Fibre Channel connection mode is now PTP Preferred
      - **Note** *that existing installs should be checked after upgrade to make sure their Fibre Channel HBA connectivity is not disrupted by the new settings.*
  - **CacheAssure monitoring** – For models which support the CacheAssure feature, an email alert is now generated when the CacheAssure hardware is missing or broken.

- **FastStream SC 8500** – This model was updated with the latest bug fixes. Major new features found in the 5550, 8250 and 8550 are not available on the 8500.
- **Version 4.00 (Released 10/14/10)**
  - **New Products**
    - **The FastStream family has been upgraded with new models which add on to the robust feature set of the FastStream product line. These products include:**
      - **FastStream SC 5550 / 5550E** – An updated version of the FastStream 5500 with new features outlined below. The 5550 supports up to 64 SAS and SATA disk drives and provides 4Gb Fibre Channel host connectivity
      - **FastStream SC 8250 / 8250E** – An updated version of the FastStream 8200 with new features outlined below. The 8250 supports up to 128 SAS and SATA disk drives and provides 6Gb SAS host connectivity
      - **FastStream SC 8550 / 8550E** – An updated version of the FastStream 8500 with new features outlined below. The 8550 supports up to 128 SAS and SATA disk drives and provides 8Gb Fibre Channel host connectivity
  - **New Model Features**
    - **CacheAssure™** is a maintenance-free flash-based data protection module that safeguards against the loss of cached data even during catastrophic system failures. CacheAssure does not use a battery, provides lifetime backup of cached data, Immediate RAID protection is maintenance free and environmentally friendly. This feature is an optional add-on to the FastStream Storage Controller.
    - **Onboard Audible Alarm** – an audible alarm is now present to alert users of issues with the controller – this feature may be enabled or disabled from ExpressNAV or CLI
    - **Updated Flash ROM capacity** – increased ROM capacity to enable future feature which will provide dual flash ROMs for reliability while upgrading FastStream firmware
    - **Soft Power Reset (embeddable models only)** – allows customers to add a soft-click type reset to their enclosures which use the FastStream as their RAID controller
    - **New Internal SAS ports (embedded models only)** – updated ports to SFF-8087 customers will need to migrate over from the SFF-8484 connectors which were on the 5500, 8200 and 8500
- **Version 3.86 (Released 9/7/10)**
  - **New Firmware Features**
    - **Bug fixes to prevent issues to the SAN when an Apple Mac workstation with non-ATTO HBA's reboot while connected to the FastStream 8500 and 8550 only.**
- **Version 3.85 (Released 7/28/10)**
  - **New Firmware Features**
    - **Ability to disable/enable FUA Bit to improve performance with SAS drives and certain applications like Assimilate Scratch. This addresses current customer issues with the 7500 and 8500 only.**
- **Version 3.84 (Released 6/18/10)**
  - **New Firmware Features**
    - **DriveAssure™ Data Recovery Mode** allows access to data in offline RAID Groups via Basic and Extreme Recovery modes. Has the ability to force a rebuild to complete when errors are encountered on a member drive.
  - **Incident Resolutions, Enhancements and Feature improvements**
    - **Updated Fibre Channel and SAS firmware layer** to allow host and device connections to have the latest updates, fixes and features for FC and SAS
    - **FTP Timeout value setting** added to help users who use scripting to make sure a previous FTP session is closed before a new session is opened
    - **Duplicate retry messages removed from the log** to make it easier to troubleshoot any problems encountered in the field
    - **Updated SpeedRead and Rebuild priority** to be synergistic with ExpressSAS RAID – Rebuild 'Equal' priority is now 'Same' priority. SpeedRead Enabled is now 'Always', Disabled is now 'Never' and Auto is now 'Adaptive'

- **Removed Fibre Channel Hard Addressing** from ExpressNAV FC Hard Addressing is still available via the RAID CLI (Fibre Channel models only)
  - **Improved operation with Apple/LSI Fibre Channel HBAs** fixed issue where, upon reboot, some workstations may lose access to RAID Groups (Fibre Channel models only)
- **ExpressNAV Storage Manager Improvements**
  - **Updated RAID Group wording** on the Manage Menu > RAID Groups
  - **Added Fan Speed and Temperature** to SES Elements Monitor page
  - **Updated help text** and added tool tips for many ExpressNAV functions
  - **Improved Partition creation functionality** can now split by count or size and also added a reset button to start creating partitions from scratch



- **Modify Partitioning improved** – now easier to split and merge partitions after a RAID Group has been created
- **Updated Initial Setup** menu to better identify creating RAID Groups and system processes
- **Combined Quick Digital and General Digital Video** one-button setups to create a more efficient Digital Video option
- **Added new information fields** when you hover over drives in when setting up a RAID Group or in the Drive Detail page. New fields include Disk Speed, Disk State, Device Type, LUN and RAID Group usage

### 3. Known Issues/Advisements

- From the GUI you may only select 2 degraded drives to rebuild at a time. However you can select 2 additional degraded drives each time you go back into the rebuild screen.
- When setting up RAID 50 and 60 Groups from the GUI, drives added are added in order that they are clicked upon and added sequentially by axle.
- In Windows environments you may receive a message to install drivers for the FastStream. There are no drivers, simply click cancel and this message should not appear again on subsequent reboots.
- This GUI in this version of firmware only supports versions of Microsoft Internet Explorer after IE8. Version IE8 and prior are not supported.
- Version 4.57 supports the FastStream SC 8550 only, version 4.30 is the latest version for the 5550 model FastStream Storage Controllers.
- Drive performance metrics via CLI and GUI may not be accurate when I/O is passed to multiple RAID Groups. The CLI "Performance" command will show accurate aggregate system performance metrics.
- Phy link status will be out of date for 10 seconds after cable pull, insertion, or event. This will delay any SNMP traps by 10 seconds as well. This is a limitation of Intel's firmware.
- Phy link status will not be updated on one cable event, when two cables are connected to the same storage. This will prevent an SNMP trap from being sent. This is a limitation based on Intel's firmware.
- Dell MD1200 array will not be recognized on SES at boot occasionally, or will timeout. This has been deemed a 3<sup>rd</sup> party issue.
- In OS X configurations, mounted RAID groups may not disappear from desktop when deleted.
- When using storage enclosures with LSI 12 port daisy-chained expanders, support is currently limited to two levels of expanders. This issue does not occur with other expander manufacturers.
- When using Internet Explorer in Windows 2008 Server, javascript is disabled by default. The ExpressNAV Storage Manager requires this functionality to be enabled. Please enable within the security settings of Internet Explorer.

- Seagate Barracuda AS Gen 11 disk drives are intended for desktop use. These drives are NOT recommended for use with the ATTO FastStream at this time. Affected models include ST3160813AS, ST3320613AS, ST3500320AS, ST3500620AS, ST3640323AS, ST3750330AS, ST3750630AS, ST31000333AS, ST31000340AS and ST31500341AS. Please visit ATTO or Seagate's website for more information and potential drive firmware updates.
- When connecting wide-ported SAS devices (RAID Arrays) to the FastStream, performance will be limited to the bandwidth single PHY per SAS connection (300 MB/sec). This issue does not occur when using JBOD storage with the FastStream
- When replacing the SAS cable on the FastStream, drives may not show up in the ExpressNAV Storage Manager. Please power cycle the storage and FastStream to see attached drives.
- When using online capacity expansion, individual drives on the Health and Status Monitor page will show up as CONVRT 0% instead of online; drives and RAID groups will be online and accessible. A reboot of the FastStream will clear this status.
- BlockDevIdentify command does not work correctly for Fujitsu drives.
- Once upgrading to 4.30, from a firmware version prior to 4.20, on affected dual boot platforms (5550, 8550), back-flashing to previous firmware releases is no longer possible.
- Once upgrading to 4.20, from a firmware version prior to 4.20, previous event log entries will be lost. If necessary, back up event log prior to firmware upgrade.

#### 4. Affected Products

Product Name	SKU	Firmware Filename
FastStream SC 8550	FSSC-8550-D00 / -DC0	S850460.ima
FastStream SC 8550E	FSSC-8550-E00 / -EC0	S850460.ima
FastStream SC 9000	FSSC-9000-D00 / -DC0	S900460.ima
FastStream SC 9000E	FSSC-9000-E00 / -EC0	S900460.ima

#### 5. Contacting ATTO Support

ATTO Technology, Inc. is renowned for its technical support services. ATTO's goal is to provide you the quickest response possible for your technical support needs, and is available Monday-Friday, 8:00 AM to 6:00 PM EST (except holidays and plant closings).

ATTO Technical Support can be contacted via phone or email:

- Phone: 716.691.1999 ext. 242
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