LSISAS6160 SAS Switch r200.09.01.00 Firmware

Release Notes

Version 1.0
April 2011

Revision History

Version and Date	Description of Changes
Version 1.0, April 2011	Initial release of this document.

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Document Number: DB07-000111-00

Release Notes

LSISAS6160 SAS Switch Firmware

These release notes correspond to r200.09.01.00 of the LSISAS6160 SAS switch firmware.

CAUTION: You *must* install r200.05.03.00 of the LSISAS6160 SAS switch firmware before you upgrade to r200.09.01.00. If you do not follow this upgrade path, your switch will become locked and you will need to download and run a switch recovery utility from the LSI Website to make it functional again.

Upgrading to r200.09.01.00

Refer to the *LSISAS6160 SAS Switch User Guide* for complete instructions on upgrading the switch firmware to r200.09.01.00. The following situations might occur when you upgrade the firmware:

- The notes in the Update Firmware- Activate window state "The switch automatically resets after the update." This is incorrect, you must click the **Activate** button to complete the upgrade.
- An error message appears stating "Could not reset expander [*SAS Address*]: Error occurred while communicating with server. Server connection lost! Please log in again." This is expected behavior, because the switch was reset, and during a reset you lose all networking capabilities.
- When you click the **OK** button, you are returned to the SAS Domain Manager (SDM) login screen. At this point, close the browser and reconnect to SDM.
- If you do not close the browser, you will get an error stating "Could not get information for expander [*SAS Address*]: Protocol error occurred while communicating with server." Close the browser and reconnect to SDM at this point, and everything will work correctly.

New Features

This section lists the new features included with r200.09.01.00 of the LSISAS6160 SAS switch firmware. Refer to the *LSISAS6160 SAS Switch User Guide* for more information about these features.

- Ability to control SDM discovery time, including turning it off.
- Ability to bulk modify and bulk create aliases in the GUI.
- Ability to prevent incompatible firmware downloads, based on firmware version.
- Support for attaching one SAS-1 or SAS-2 tape drive per LSISAS6160 SAS switch.

Support Matrix

The LSISAS6160 SAS switch is designed to be compatible with SAS 2.1-compliant devices. The operating systems and hardware listed in the following table have been explicitly tested for compatibility with the LSISAS6160 switch.

Table 1: LSISAS6160 Support Matrix

Operating System	LSI Driver Version
Windows® 2008 SP2 x64bit	Version 2.00.42.00 (LSI SAS-2)
RHEL 5U5 x64bit	09.00.00.00 (LSI SAS-2)
RHEL 5U6 x64bit	09.00.00.00 (LSI SAS-2)
RHEL 6 x64bit	09.00.00.00 (LSI SAS-2)
SLES 11 x64bit	09.00.00.00 (LSI SAS-2)
SLES 11 SP1 x64bit	09.00.00.00 (LSI SAS-2)
LSI Host Bus Adapter	**Firmware and BIOS Version**
SAS9210-8e	Firmware 9.0.0.0 BIOS 7.17.00.00
SAS9200-8e	Firmware 9.0.0.0 BIOS 7.17.00.00
SAS9200-16e	Firmware 9.0.0.0 BIOS 7.17.00.00
LSISAS2008	Firmware 9.0.0.0 BIOS 7.17.00.00
LSISAS2108	Firmware 9.0.0.0 BIOS 7.17.00.00
LSISAS2116	Firmware 9.0.0.0 BIOS 7.17.00.00
LSISAS2208	Firmware 9.0.0.0 BIOS 7.17.00.00
LSI JBOD	**Comments**
LSI620J/LSI630J	LSI ordering part numbers are LSI00217/LSI00218
CTS2600-12/CTS-2600-24	Supported at firmware release 7.75.xx.
Active Cables	**Vendor Part Number**
Active Cable – 10 meters	CBL-SFF8088SAS-10M
Active Cable – 20 meters[a]	CBL-SFF8088SAS-20M
SAS Tape Drives	**Model Number**
SAS-1/SAS-2 Tape Drives (One tape drive per LSISAS6160 switch)	SAS2 Quantum L700 (Drive firmware: 3060, Loader firmware: v75.0) SAS1 HP StorageWorks Ultrium 920 SAS (Firmware U12D)
Passive Cables	**Comments**
Various	Several manufacturers were used in compatibility testing

a. Do not use this 20-meter cable to connect SATA drives. The SATA Specification does not allow cables of over 10 m.

Firmware and Hardware Advisories

This section lists the firmware and hardware advisories for the LSISAS6160 switch.

Malformed Zone Set Error Occurs in SDM GUI

A *Malformed Zone Set* error occurs in SDM GUI if you are using a x2 connection, and you remove and erase devices following a zoneset activation. (A *Factory Restore* does this.)

Technical Description: If you erase region 10 and region 11 following zoneset activation when using a x2 connection, all zonegroups and zonesets created at the SDM end are lost. Therefore, SDM cannot map an activated zoneset with any of its database, and it displays the *Malformed Zone Set* error.

Observed Behavior	When using a x2 connection, a *Malformed Zone Set* occurs in the SDM GUI.
Impact	None
Workaround	Close SDM and open a new session.

Cascaded Switches with SAS-1 and SAS-2 HBAs

LSI has identified a potential setup problem when integrating SAS-2 switches in cascaded topologies.

Technical Description: Cascaded switches are supported only for SAS-2 HBAS in which the *Allow Table-to-Table Links* bit is enabled. SAS-1 HBAs do not support cascaded switches.

Observed Behavior	In both SAS-1 and SAS-2, the host bus adapter (HBA) reports the following topology discovery error when booting up the system: SAS discovery error 0x00000400
Impact	• In SAS-1, the firmware does not display devices behind a cascaded switch. Topology changes can affect future discovery and driver stability. • In SAS-2, discovery only reports the error as required for informational purposes and takes no further action.
Workaround	• In SAS-1, cascaded switches are not supported. • In SAS-2, ignore the SAS discovery error message. This error will be removed from future releases of the LSI HBA firmware.

I/O Fails when Activating a Zone Set

LSI has identified an issue that occurs when zone sets are activated while I/O transactions are running. This issue applies to JBODs only. RAID boxes are supported.

Technical Description: All ports lock and there is a large burst of arbitrations in process (AIPs) when zone sets are activated while I/O transactions are running.

Observed Behavior	If a zone set is activated while I/O transactions are running, the LSISAS6160 switch and the attached JBODs might become unresponsive.
Impact	I/O activity stops and management is not possible.
Workaround	Contact your JBOD manufacturer for an updated version of the firmware that supports changing zone sets while I/O transactions are running.

SATA Drive Capacities Appear as UNKNOWN

Technical Description: The SATA protocol assumes that it is always communicating with a single initiator. SATA over SAS (STP) is implemented so that the first initiator that sends an I/O to a SATA drive is then *affiliated* with that drive. No other initiator can communicate with an affiliated SATA drive, and therefore the LSISAS6160 switch cannot send I/Os to the SATA drive to query it and to retrieve the drive size. Therefore, SATA drives capacities are reported as UNKNOWN.

Observed Behavior	SATA drive capacities are reported as UNKNOWN in SDM.
Impact	None.
Workaround	None. Limitations in the SATA specification do not allow the SAS switch to display SATA drive capacities.

Cannot Use Cables Longer than 10 m with SATA Drives

Technical Description: The SATA specification does not allow cables of over 10 m.

Observed Behavior	The LSISAS6160 switch cannot establish connections with SATA drives if using cables longer than 10 m.
Impact	Intermittent or nonexistent communication with SATA drives.
Workaround	None.

SDM Error after Firmware Upgrade

Technical Description: The SDM error window indicates a reset expander failure after you upgrade and activate firmware on the LSISAS6160 switch from r200.05.03.00.

Observed Behavior	While waiting to reset the LSISAS6160 switch with the new firmware, SDM times out and displays an error message stating that it failed to reset the expander and that it lost communication with it.
Impact	None. The switch actually did reset.
Workaround	Ignore the error window and log back in to SDM.

Using the Xip Utility with MegaRAID and 3Ware SAS RAID Controllers

Technical Description: Before the Xip utility can gather and set IP information for the LSISAS6160 switch, its SCSI enclosure must be presented to the operating system.

Observed Behavior	Xip fails to initialize when using 3ware and MegaRAID SAS RAID controllers and displays the error *IAL or HAL API Failed*.
Impact	Unable to retrieve or set IP information for the LSISAS6160 switch when using 3ware and MegaRAID SAS RAID controllers with the Xip utility.
Workaround	With MegaRAID controllers, you can enable the ExposeEnclDevicesEnbl bit by issuing the following megacli command before booting the operating system: `MegaCli -AdpSetProp ExposeEnclDevicesEnbl 1 -a0` 3ware SAS RAID controllers do not support the Xip utility. Use another model of HBA that supports Xip.

Erratic Response to VoltageSense03 Threshold Changes

Technical Description: VoltageSense03 does not always respond the first time to threshold changes.

Observed Behavior	It may require multiple threshold requests before the threshold changes for VoltageSense03.
Impact	VoltageSense03 threshold changes are not updated on the first request.
Workaround	Retry the request until the change is accepted.

SDM Allows Temperature Threshold and High Critical Voltage Threshold to be Set Inconsistently

Technical Description: You cannot change temperature threshold values beyond the range of 1 °C to 79 °C. This prevents you from accidentally changing important system values. However, the range check is independent of all four thresholds. For example, the Low Critical setting retains its original value if the range check fails for it, but the Low Warning setting gets the new value, which might be lower than the old Low Critical value but still within the range.

You cannot change voltage threshold values beyond the range of 5.5 percent to 24.5 percent. However, the range check is independent of all four thresholds. For example, the High Critical setting retains its original value if the range check fails for it, but the High Warning setting gets the new value, which might be higher than the old High Critical value but still within the range.

Observed Behavior	A change to a temperature threshold or voltage threshold setting is accepted when it should be rejected.
Impact	The firmware might generate a critical alarm when it should have generated a warning alarm first.
Workaround	Do not set any temperature threshold value outside the stated range of 1 °C to 79 °C. Do not set any voltage threshold value outside the stated range of 5.5 percent to 24.5 percent. Refer to the *LSISAS6160 SAS Switch User Guide* for more information.

SDM Connector Wizard Displays x2 Ports Incorrectly

Technical Description: The SDM GUI Connector Wizard displays x2 ports incorrectly if a x4 connector is split and devices are connected to it through x2 connections.

Observed Behavior	In the Connector Wizard, the port with the x2 connection is listed twice.
Impact	Port information is incorrect.
Workaround	None. Ignore the extra phys listed in the Connector Wizard for a x2 connection.

Heavy Activity Causes Telnet Functionality to Become Unresponsive

Technical Description: The Telnet connection might become unresponsive if the maximum number of Telnet sessions are open, with command activity.

Observed Behavior	Open Telnet connections become slow or unresponsive.
Impact	You cannot run the Telnet connection into the LSISAS6160 switch because the connection is slow or unresponsive.
Workaround	Reset the switch if you are unable to log in to Telnet sessions.

SNMP v3 No Such Name Response is Malformed

Technical Description: When requesting an object that does not exist using SNMP v3, some managers do not correctly interpret the No Such Name response from the switch.

Observed Behavior	SNMP v3 No Such Name responses are malformed.
Impact	The SNMP manager might not register the response that it receives.
Workaround	Use SNMP v2c requests.

Portstatus Does Not Update If One Phy in a x16 Connection Is Removed and Connected to a Different Device

Technical Description: Starting with a connection of between two and four connectors that are attached to the same SAS address, the switch creates a very wide port to that device. (A *very wide port* is a port larger than x4, such as x8, x12, or x16.) If one phy from this port is connected to another SAS address, that connector is invalid. However, it stays mapped into the very wide port, creating an invalid port mapping.

Observed Behavior	An invalid connector is left incorrectly in a logical port.
Impact	The error affects the mapping to devices on that port.
Workaround	Correct the invalid port and power cycle the switch.

Attaching a Tape Drive to a Master Phy Causes the Master to Lock Up and Become Permanently Failed

Technical Description: If you connect certain tape drive models to an even-numbered port connector (top row) of the switch, they might cause the switch to go into a permanently failed state.

Observed Behavior	A tape drive attached to an even-numbered port connector (top row) might cause the switch to fail.
Impact	The switch is permanently failed and cannot be recovered.
Workaround	Only attach tape drives to odd-numbered port connectors on the bottom row of the switch.

Switch Sends Broadcast (Change) Instead of SMP Zoned Broadcast Over Certain Port Configurations

Technical Description: After zoning is enabled, the switch sends a Broadcast (Change) primitive instead of an SMP Zoned Broadcast over links that are configured to be Inside ZPSDS.

Observed Behavior	Broadcast (Change) primitive is sent on links that are configured to be Inside ZPSDS, and zoning is enabled.
Impact	None. A user will never see this in SDM.
Workaround	None.

SAS Port Might Not Be Marked as Invalid when All Phys in the Port Are NOT Configured to Be in the Same Zone Group

Technical Description: The SAS spec requires that all phys in a port have the same zone phy information. Any port that does not meet this requirement is not a valid SAS port and should be marked as invalid. The switch implementation hides these invalid ports during discovery.

Observed Behavior	Ports might show up in discovery with invalid zone configuration.
Impact	None.
Workaround	Reconfigure zoning.

Slave Phys Always Report Zoning Enabled = 1 and Saved Zoning Enabled = 0 in Discover Response

Technical Description: When a Discover SMP request is sent to a slave phy, it always reports Zoning Enabled = 1 even if zoning is disabled. When zoning is enabled, the slave reports Saved Zoning Enabled = 0.

Observed Behavior	When sending a Discover SMP request to a slave phy on the switch, the response for the Zoning Enabled and Saved Zoning Enabled fields might contradict the current zoning state.
Impact	This problem only affects Discover requests and Discover List requests that use long descriptors. It does not affect requests with short descriptors (descriptor type = 1).
Workaround	Use the short descriptor SMP for Discover and Discover List requests.

Phy is Sometimes Dropped while Combining and Separating Connections with a x2 Cable

Technical Description: If a connection between an HBA and a switch is combined or separated by connecting and disconnecting a x2 cable between the devices, sometimes a phy is dropped in SDM CLI and SDM GUI. This occurs because a series of connect and disconnect events is generated continuously, and SDM cannot get proper data during discovery.

Observed Behavior	Phy is sometimes dropped while combining and separating connections with a x2 cable.
Impact	SDM might not be able to see devices attached to dropped phys.
Workaround	Disconnect and reconnect the cable.

An Incomplete File Can Be Created When Creating a Backup after Zoneset Activation

Technical Description: Discovery is initiated after zoneset activation. If the topology is not stable, and SDM cannot see all the devices in the topology, an incomplete backup file might be created. Do not create a backup file until the topology is stable, following zoneset activation .

Observed Behavior	SDM produces an incomplete backup file if the topology is not stable when the backup is created.
Impact	The incomplete backup file is corrupted and cannot be restored.
Workaround	Be sure the topology is stable and that SDM can see all the devices in the topology before creating the backup.

In SDM-CLI with Discovery Disabled, an Attempt to Change Configuration Returns an Improper Error

Technical Description: After discovery is disabled, SDM-CLI returns a MESSAGE_INVALID error when you deactivate or deactivate a zoneset. This occurs because zoneset activation and deactivation are not supported when discovery is disabled. SDM generates an error in this case, and SDM-CLI cannot catch the error properly.

Observed Behavior	In SDM-CLI with discovery disabled, activating or deactivating a zoneset returns an improper error.
Impact	None.
Workaround	Be sure discovery is not disabled in SDM before activating or deactivating a zoneset.

SDM-CLI Displays Incorrect Device Type for SAS-1 x12 Expander

Technical Description: SDM-CLI displays an incorrect device type for SAS1 x12 expanders.

Observed Behavior	SDM-CLI displays incorrect device type for SAS1 x12 expander.
Impact	None
Workaround	Ignore the device type.

End Device Wizard Auto Selects Multiple Targets

Technical Description: The End Device Wizard selects multiple targets with a topology that has many targets. This happens when selecting a target at the top of the list.

Observed Behavior	When you try to select an end device, multiple end devices are selected.
Impact	Unable to select a single end device from the top of the list.
Workaround	Use the selected multiple end devices from the wizard or a single end device through SDM GUI manual zoning.

SDM GUI Takes a Long Time to Download Firmware

Technical Description: The firmware image (`lynx6160.fw`) takes 8 or 9 minutes to download, using SDM GUI. This does not apply when you upgrade to r200.09.01.00 of the firmware, but it will apply to downloads of future point releases of the firmware.

Observed Behavior	It takes around 9 minutes to download the updated firmware. Firmware download works quickly up to about 50 percent. After that, it runs much slower until the download is complete.
Impact	It takes longer to upgrade to point releases of the Puma switch firmware.
Workaround	None.

Resolved Firmware and Hardware Issues

This section lists firmware and hardware issues for the LSISAS6160 switch that have been resolved.

Zone Group in Route Table Entries for Expanders Outside ZPSDS Not Updated after Activate or Deactivate

Issue: When non-zoning JBODs were attached to the LSISAS6160 switch and a zone activate or zone deactivate took place, the switch did not update the route table entries for the devices attached to the non-zoning JBODs.

Resolution: This issue is resolved in the latest version of the switch firmware.

Sending Long Client Version Strings Prevents SSH Connection from Closing Properly

Issue: When a version string longer than 2000 bytes was sent at the start of an SSH session, the SSH connection sometimes did not close properly.

Resolution: This issue is resolved in the latest version of the switch firmware.

Invalid Switch Port Prevents Zoning from Being Activated or Deactivated

Issue: Zoning could not be activated or deactivated if phys were added to an invalid port on the LSISAS6160 switch for which zoning was already activated.

Resolution: This issue is resolved in the latest version of the switch firmware.

Disk Capacity for SAS Device Shown as UNKNOWN After a Power Cycle

Issue: The Disk Capacity for SAS end devices was sometimes displayed as UNKNOWN following a power cycle.

Resolution: This issue is resolved in the latest version of the switch firmware.

SNMP OIDs Using DisplayString Incorrectly Accept non-ASCII Characters

Issue: Simple Network Management Protocol (SNMP) object identifiers (OIDs) that support SET operations such as *sysContact*, *sysName*, and *sysLocation* accepted non-ASCII characters instead of rejecting them.

Resolution: This issue is resolved in the latest version of the switch firmware.

SDM End Device Wizard Unable to Select Two RAID Controllers Individually

Issue: When a system used certain types of RAID controllers and ran the End Device Wizard in SDM, it sometimes did not allow you to select individual controllers to set zoning.

Resolution: This issue is resolved in the latest version of the switch firmware.

Day of the Week is Incorrect in the Event Log Timestamp

Issue: The SDM GUI displayed the wrong day of the week for entries in the SDM event log.

Resolution: This issue is resolved in the latest version of the switch firmware.

SDM Does Not Allow Voltage Threshold Values to be Set Inconsistently

Technical Description: If you attempted to set the High Warning Threshold greater than the Low Warning Threshold, SDM rejected it because it was inconsistent.

Resolution: This issue is resolved in the latest version of the switch firmware.

Show Device Command Displays Phys Incorrectly

Issue: The SDM-CLI Show Device command showed only 4 of the 16 Phys when a x16 connection was made between the LSISAS6160 switch and an initiator.

Resolution: This issue is resolved in the latest version of the switch firmware.

Cannot Modify 248th Zone Set when Maximum Number of Zone Groups are Applied to It.

Issue: An error was generated if you tried to modify the 248th Zone Group in the 32nd Zone Set.

Resolution: This issue is resolved in the latest version of the switch firmware.

Troubleshooting

This section lists troubleshooting tips for the LSISAS6160 switch.

Internal Fans Change to Critical State when Downgrading Firmware from r200.09.01.00 to r200.05.03

Description: The status of the internal fans changes to Critical state if you downgrade the LSISAS6160 firmware from r200.09.01.00 to r200.05.03.

Observed Behavior	The internal fans spin up to full RPM and do not spin down.
Impact	Internal fan state becomes Critical.
Workaround	Press the Restore Defaults button on the front of the switch.

Switch Becomes Locked when Upgrading the Firmware

Description: If you do not follow the specified firmware upgrade sequence for the LSISAS6160 switch, or if the upgrade process is disrupted in some way, the switch management GUI can become unavailable.

Observed Behavior	The LSISAS6160 switch is still operational, but the SDM-GUI interface becomes unavailable and an error page is displayed.
Impact	You cannot manage the LSISAS6160 switch through the SDM interface.
Workaround	Download the switch recovery utility and its Readme file from the LSI website and follow the instructions to restore management functionality to your switch.

Cannot Connect to Switch for Management

Description: SDM uses several Ethernet ports for management functions. You must enable these ports before you can connect to the switch for management.

Observed Behavior	You can ping the LSISAS6160 switch, but you cannot connect to the switch through a browser for management.
Impact	You cannot manage the LSISAS6160 switch.
Workaround	Enable these ports on the Ethernet switch and/or on the firewall: • Port 22: SSH (Secure SHELL) • Port 23: Telnet. • Port 80: HTTP. • Port 5573: SDM port. Enables the GUI to log in to the switch.


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