

**Proposed
Draft**

**Serial ATA
International Organization**

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**Serial ATA Digital WG Technical Proposal # 129
Title : Add Sanitize State to SSP support**

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Introduction

ACS-2 r2 introduces the Sanitize feature set. The Sanitize feature set has a state machine which has a frozen state which disables Sanitize operations. This frozen state (SD1) will transition to an idle state (SD0) on hard resets. This allows "soft" removal of the frozen state to allow a system to Sanitize a device. However, as COMRESET may occur without system knowledge, this proposal adds a requirement that when Software Settings Preservation is enabled, that the transition from SD1 to SD0 will not occur.

1 Technical Specification Changes

1.1 Software Settings Preservation (Optional)

[**Editor's Note:** The changes marked in blue (and underlined/strikethrough) will be incorporated in section 13.4]

When a device is enumerated, software configures the device using SET FEATURES and other commands. These software settings are often preserved across software reset but not necessarily across COMRESET. In Parallel ATA, only commanded hardware resets may occur, thus legacy mode software only reprograms settings that are cleared for the particular type of reset it has issued. In Serial ATA, COMRESET is equivalent to hardware reset and a non-commanded COMRESET may occur if there is an asynchronous loss of signal. Since COMRESET is equivalent to hardware reset, in the case of an asynchronous loss of signal some software settings may be lost without legacy mode software knowledge. In order to avoid losing important software settings without legacy mode driver knowledge, the software settings preservation ensures that the value of important software settings is maintained across a COMRESET. Software settings preservation may be enabled or disabled using SET FEATURES with a subcommand code of 06h (refer to section **Error! Reference source not found.**). If a device supports software settings preservation, the feature shall be enabled by default.

The software settings that shall be preserved across COMRESET are listed below. The device is only required to preserve the indicated software setting if it supports the particular feature/command the setting is associated with.

INITIALIZE DEVICE PARAMETERS: Device settings established with the INITIALIZE DEVICE PARAMETERS command. This command is obsolete in the ATA/ATAPI-6 standard, and was last defined in the ATA/ATAPI-5 standard.

Power Management Feature Set Standby Timer: The Standby timer used in the Power Management feature set.

Read/Write Stream Error Log: The Read Stream Error Log and Write Stream Error Logs (accessed using READ LOG EXT and WRITE LOG EXT).

Security mode state: The security mode state established by Security Mode feature set commands (refer to the ATA/ATAPI-6 standard). The device shall not transition to a different security mode state based on a COMRESET. For example, the device shall not transition from the SEC5: Unlocked / not Frozen state to state SEC4: Security enabled / Locked when a COMRESET occurs, instead the device shall remain in the SEC5: Unlocked / not Frozen state.

SECURITY FREEZE LOCK: The Frozen mode setting established by the SECURITY FREEZE LOCK command.

SECURITY UNLOCK: The unlock counter that is decremented as part of a failed SECURITY UNLOCK command attempt.

SET MAX ADDRESS (EXT): The maximum LBA specified in SET MAX ADDRESS or SET MAX ADDRESS EXT.

SET FEATURES (Write Cache Enable/Disable): The write cache enable/disable setting established by the SET FEATURES command with subcommand code of 02h or 82h.

SET FEATURES (Set Transfer Mode): PIO, Multiword, and UDMA transfer mode settings established by the SET FEATURES command with subcommand code of 03h.

SET FEATURES (Advanced Power Management Enable/Disable): The advanced power management enable/disable setting established by the SET FEATURES command with

subcommand code of 05h or 85h. The advanced power management level established in the Sector Count register when advanced power management is enabled (SET FEATURES subcommand code 05h) shall also be preserved.

SET FEATURES (Read Look-Ahead): The read look-ahead enable/disable setting established by the SET FEATURES command with subcommand code of 55h or AAh.

SET FEATURES (Release Interrupt): The release interrupt enable/disable setting established by the SET FEATURES command with a subcommand code of 5Dh or DDh.

SET FEATURES (SERVICE Interrupt): The SERVICE interrupt enable/disable setting established by the SET FEATURES command with a subcommand code of 5Eh or DEh.

SET FEATURES (Reverting to Defaults): The reverting to power-on defaults enable/disable setting established by the SET FEATURES command with a subcommand code of CCh or 66h.

SET MULTIPLE MODE: The block size established with the SET MULTIPLE MODE command.

Write-Read-Verify feature set: The contents of IDENTIFY DEVICE data word 120 bit 1, words 210-211, and word 220 bits (7:0). The device shall not return to its Write-Read-Verify factory default setting after processing a COMRESET.

[SANITIZE FREEZE LOCK EXT:](#) The Frozen state (see ACS-2).

/* Editor's Notes:

[Add ACS-2 to the References section](#)

[Alphabetize the list](#)

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