Subject: MEDIA SCAN COMMAND

Proposed command for WORM and Optical Device Types

This is a major rework of the proposal for the Search for Empty Blocks command (X3T9.2/86-99) based on the discussions at the Optical Storage Group session on Monday, 19 January 1987. The name of the command is changed to more naturally incorporate the function of searching for written as well as for empty blocks.

At the Colorado Springs meeting, the suggestion by Mr. Snively (X3T9.2/86-122) was discussed but not adopted. It was felt that there was precedent in the Search commands for returning results in the Sense Data. Further, there is not sufficient room in a 12 byte command format to specify the three parameters without resorting to somewhat awkward 3-byte fields or uncomfortably restrictive field sizes for the Number of Blocks to Scan and/or Verify fields.

Media Scan Command

Peripheral Device Type: WORM, Optical Devices
Operation Type Code: Optional
Operation Code: Group 1, Op Code 3B

The Media Scan command will scan a defined range searching for a contiguous span of the media either empty or written. Results are posted in the Sense Data block.

The area of the media to be scanned starts with the Beginning Logical Block Address and is Number of Blocks to Scan in length. The Command will terminate when this area has been scanned or when a suitable extent Number of Blocks to Verify in length has been located.

A Number of Blocks to Scan of zero shall indicate that the scan shall continue to the end if the media if necessary.

A Number of Blocks to Verify of zero indicates that no scan shall take place. This shall not be considered an error condition.

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An Assert Contiguous Data bit of one directs the target to assume that all blocks being searched for (as specified by the Written Block Search bit, if any exist) form a contiguous extent extending to the limit of the area to be scanned. This is advisory to the target.

Implementors note: This definition is intended to allow any of a number of search algorithms of which the classic binary search is one example. Implementation of search algorithms beyond the default linear scan is optional.

The Reverse Search Direction Direction bit if zero selects scanning in the default forward direction scan. Upon success, a forward direction search shall return via the Sense Data Information Bytes the least address of an extent closest to the Beginning Logical Block Address of the type specified in the Written Block Search bit.

The Reverse Search Direction Direction bit if one selects a reverse direction search. Upon success, this shall return in the Sense Data Information Bytes the least address of an extent closest to the end of the area to be scanned Number of Blocks to Verify in length. The reverse direction search is an optional capability: targets which do not support this option shall return a CHECK CONDITION and set an ILLEGAL REQUEST Sense Key if this bit is a one.

A Partial Results OK bit of zero specifies that the scan shall continue after determining that a candidate extent did not meet the Number of Blocks to Verify criteria.

Partial Results OK, if one, specifies that the scan shall terminate as soon as any extent meeting the criteria given by the Written Block Search bit specification in found. The number of consecutive blocks found (up to Number of Blocks to Verify) is returned as the first four Additional Sense Data bytes. If the length of the extent found is equal to Number of Blocks to Verify, CONDITION NBET shall be returned. Otherwise, if the scan completed without errors, GOOD completion status shall be returned. If no blocks meeting the Written Block Search bit specification are found the Valid bit of the Sense Data block shall be zero.

A Link bit of one indicates that a following command is linked to the Media Scan command. The linked command will be executed if the Media Scan terminated with CONDITION NBET status. If this command has the Relative Address bit set the Logical Block Address determined by the Media Scan command will be used as a base address to compute the linked commands effective address.