

To: T10 Membership
From: Paul Suhler, Seagate Technology
Date: 5 April 2000
Subject: SET CAPACITY Command
Document: T10/00-161r2



1 Changes from Previous Versions

1.1 Changes in 00-161r2

- Added more text to clarify that the change in capacity is persistent.

1.2 Changes in 00-161r1

- Opcode is changed to 0Bh, as suggested by Ralph Weber, as the previous opcode, 1Fh, was the last remaining unused opcode for 6-byte CDBs.
- Added text to clarify that the command applies only to the medium currently in the device server.

2 Proposed Command

5.3.X SET CAPACITY command

The SET CAPACITY command (see Table 1) sets the available medium for the currently-mounted volume to a proportion of the total capacity of that volume. Any excess space shall be unavailable on the volume after successful completion of this command until reset by a new SET CAPACITY command. This change shall persist through power cycles, device resets, and unloading and reloading of the volume. Other vendor-specific actions such as physical erasure may reset the total capacity of the volume. The method for recording the available capacity and other marks needed to manage the resulting capacity for volume interchange may be specified in a recording format standard or may be vendor-specific.

Table 1 — SET CAPACITY command

Bit	7	6	5	4	3	2	1	0
Byte								
0	OPERATION CODE (0Bh)							
1	Reserved							IMMED
2	Reserved							
3	(MSB)	CAPACITY PROPORTION VALUE						
4								(LSB)
5	CONTROL							

If the device server does not contain a medium, then the command shall be terminated with CHECK CONDITION status. The sense key shall be set to NOT READY, and the additional sense code and an additional sense code qualifier set to MEDIUM NOT PRESENT.

The SET CAPACITY command shall be accepted only when the medium is at beginning-of-medium (BOM) or beginning-of-partition 0 (BOP 0). If the medium is logically at any other position, the command shall be rejected with CHECK CONDITION status. The sense key shall be ILLEGAL REQUEST with the additional sense code and an additional sense code qualifier set to POSITION PAST BEGINNING OF MEDIUM.

A valid SET CAPACITY command shall cause all data on the entire physical volume to be lost.

Buffered write data may be discarded by the device server upon successful validation of the SET CAPACITY command.

An immediate (IMMED) bit of zero indicates that the device server shall not return status until the set capacity operation has completed. An IMMED bit of one indicates that the device server shall return status as soon as the command descriptor block of the SET CAPACITY command has been validated. If CHECK CONDITION status is returned for a SET CAPACITY command with an IMMED bit set to one, the set capacity operation shall not be performed.

The CAPACITY PROPORTION VALUE field specifies the portion of the total volume capacity to be made available for use. The CAPACITY PROPORTION VALUE field is the numerator to a fraction with a denominator of 65 535. The resulting available capacity on the volume shall be equal to the total volume capacity multiplied by this fraction. The device server may round up the capacity to the next highest supported value. This rounding error shall not be considered an error and shall not be reported.

NOTE 1 Available and total volume capacities are approximate values which may be affected by defects that reduce the actual available capacity of the volume. Other factors, such as partitioning, compression, and block packing may also affect available capacity.