

T10/06-442r2 SMC-3 Add PREVENT ALLOW MEDIUM REMOVAL command

To: T10 Technical Committee
From: Noud Snelder, BDT (noud.snelder@bdt.de)
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Subject: T10/06-442 SMC-3 Add PREVENT ALLOW MEDIUM REMOVAL command

Revision History

Revision 0 (18 September 2006): initial revision
Revision 1 (2 January 2007): incorporated changes as discussed in November '06 conference call
Revision 2 (12 March 2007): removed drive medium removal condition as discussed in March '07 SMC-3 WG meeting and description in model clause about the two different medium removal condition

Related Documents

06-248r1 – Proposal to remove PREVENT ALLOW MEDIUM REMOVAL (PARM) command from SPC-4 SMC-3 r4 - SCSI Media Changer Commands – 3, revision 4

Overview

Since the PAMR command is removed from SPC-4 (see 06-232r0) a description of this command is required in SMC-3.

Suggested changes to SMC-3

Change reference to SPC-3 in table 5

Table 5 — Commands for media changers (part 1 of 2)

| Command | Operation Code | Type | Reference |
|------------------------------|----------------|------|-----------|
| PREVENT ALLOW MEDIUM REMOVAL | 1Eh | O | 6.9 |

Add PREVENT ALLOW MEDIUM REMOVAL command to table 6

| | | | | | |
|------------------------------------------|----------|----------|---------|----------|----------|
| PREVENT ALLOW MEDIUM REMOVAL (Prevent=0) | Allowed | Allowed | Allowed | Allowed | Allowed |
| PREVENT ALLOW MEDIUM REMOVAL (Prevent=1) | Conflict | Conflict | Allowed | Conflict | Conflict |

Change paragraph in chapter 6.3 EXCHANGE MEDIUM command

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If the element address specified in the SOURCE ADDRESS or the FIRST DESTINATION ADDRESS field of an EXCHANGE MEDIUM command represents a data transfer element and a prevention of medium removal condition (see SPC-3) exists within the data transfer device (see applicable command standard), the device server shall return CHECK CONDITION status and shall set the sense key to ILLEGAL REQUEST and the additional sense code to MEDIUM REMOVAL PREVENTED BY DATA TRANSFER ELEMENT.

Add paragraph in chapter 6.3 EXCHANGE MEDIUM command

If the element address specified in the DESTINATION ADDRESS or the FIRST DESTINATION ADDRESS field of an EXCHANGE MEDIUM command represents an import export element and a prevention of medium removal condition exist within the medium changer and the MVPRV bit in the Extended device capabilities mode page (see 7.3.3) is set, the device server shall return CHECK CONDITION status and set the sense key to ILLEGAL REQUEST and the additional sense code to MEDIUM REMOVAL PREVENTED. When the MVPRV bit is set to zero the prevention of medium removal condition exist within the medium changer shall not affect the EXCHANGE MEDIUM command.

Change paragraph in chapter 6.6 MOVE MEDIUM command

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If the element address specified in the SOURCE ADDRESS field of a MOVE MEDIUM command represents a data transfer element and a prevention of medium removal condition (~~see SPC-3~~) exists within the data transfer device (see applicable command standard), the device server shall return CHECK CONDITION status and shall set the sense key to ILLEGAL REQUEST and the additional sense code to MEDIUM REMOVAL PREVENTED BY DATA TRANSFER ELEMENT.

Add paragraph in chapter 6.6 EXCHANGE MEDIUM command

If the element address specified in the DESTINATION ADDRESS field of a MOVE MEDIUM command represents an import export element and a prevention of medium removal condition exist within the media changer and the MVPRV bit in the Extended device capabilities mode page (see 7.3.3.) is set, the device server shall return CHECK CONDITION status and set the sense key to ILLEGAL REQUEST and the additional sense code to MEDIUM REMOVAL PREVENTED. When the MVPRV bit is set to zero the prevention of medium removal condition within the medium changer shall not affect the MOVE MEDIUM command.

Insert chapter 6.9, subsequent chapters move down.

6.9 PREVENT ALLOW MEDIUM REMOVAL command

The PREVENT ALLOW MEDIUM REMOVAL command (see table x) requests ~~that~~ the media changer logical unit to enable or disable the removal of the medium. removal of media from the media changer. The logical unit shall not allow medium removal if any initiator port currently has medium removal prevented.

Table x — PREVENT ALLOW MEDIUM REMOVAL command

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|------|--------------------|---|---|---|---|---|---------|---|
| Byte | | | | | | | | |
| 0 | OPERATION CODE 1Eh | | | | | | | |
| 1 | Reserved | | | | | | | |
| 2 | Reserved | | | | | | | |
| 3 | Reserved | | | | | | | |
| 4 | Reserved | | | | | | PREVENT | |
| 5 | CONTROL | | | | | | | |

Table x+1 specifies the PREVENT field values and their meanings.

Table x+1 PREVENT field

| PREVENT | Description |
|---------|-------------------------------------|
| 00 | Medium removal shall be allowed. |
| 01 | Medium removal shall be prohibited. |
| 10 | Obsolete |
| 11 | Obsolete |

The prevention of medium removal shall begin when any application client issues a PREVENT ALLOW MEDIUM REMOVAL command with a PREVENT field of 01b (i.e., medium removal prevented). The prevention of medium removal for the logical unit shall terminate after:

- a) one of the following occurs for each I_T nexus that previously had medium removal prevented:
 - A) receipt of a PREVENT ALLOW MEDIUM REMOVAL command with a PREVENT field of 00b;
 - B) an I_T nexus loss; or
- b) a power on;
- c) a hard reset; or
- d) a logical unit reset.

~~If possible, the device server shall perform an synchronize cache operation before terminating the prevention of medium removal.~~ If a persistent reservation or registration is being preempted by a PERSISTENT RESERVE OUT command with PREEMPT AND ABORT service action (see SPC-3), the equivalent of a PREVENT ALLOW MEDIUM REMOVAL command with the PREVENT field set to 00b shall be processed for each I_T nexuses associated with the persistent reservation or registrations being preempted. This allows an application client to override the prevention of medium removal function for an initiator port that is no longer operating correctly.

While a prevention of medium removal condition is in effect the media changer logical unit shall ~~inhibit mechanisms that normally allow removal of the medium by an operator.~~ do one or more of the following:

- a) prevent moves with the import/export element as destination element address when the move prevented to import/export element (MVPRV) bit set is set to one in the Extended device capabilities mode page (see 7.3.3);
- b) secure the media changer door(s) when the lock door (LCKD) bit is set to one in the Extended device capabilities mode page; and/or
- c) secure the media changer import/export element(s) when the lock import/export element (LCKIE) bit is set to one in the Extended device capabilities mode page.