

**Date:** 14 January 2002  
**To:** T10 Members and MMC WG Members  
**From:** Bill McFerrin, Philips

The MMC-4 project was formally approved during the November 2001 T10 plenary. MMC-4 is being created primarily because of new proposals coming to the MMC WG.

Since we would also like to take the opportunity of the new project to address problems of readability and usefulness, I have put together this document plan in order to solicit and gather inputs on structural and content changes.

The primary change to MMC-4 over MMC-3 is the ATAPI emphasis. ATAPI represents greater than 90% of the connections for multi-media devices. Other physical interface implementations (typically 1394 and USB) are simply "tail gated" ATAPI. Although it requires greater edit work, we believe that it is best to represent the primary practice and use annexes to describe special cases.

Another highly visible change is the document structure in some major clauses. Clause 5 (formerly commands) has changed positions clause 6 (formerly parameters). In order to be clearer about the various media types, clause 4 will discuss each separately. Some commands have behavior that varies according to the current media type. The differing behaviors will be specified with the associated media types/formats. New annexes will be added or old annexes will be modified for the purpose of correctly describing implementations using other physical interfaces that also use SCSI defined CDBs.

Additionally, there are several new proposals: new media types, new media formats, and new information made available to the host via either feature descriptors or read-only mode pages. More may appear before the planned forwarding of November 2002.

It is easiest to show the structural plan by showing a table of contents. Not all detail is shown.

**Forward**

- 1 Scope**
- 2 References**
- 3 Terms and Definitions**
- 4 Multi-Media Device Models**
  - 4.1 General**
  - 4.2 CD Device Model**
  - 4.3 DDCD Device Model**
  - 4.4 DVD Device Model**
    - 4.4.1 General**
    - 4.4.2 DVD-ROM/DVD-Video**
    - 4.4.3 DVD-RAM**
    - 4.4.4 DVD-R/-RW**
    - 4.4.5 DVD+R/+RW (New in MMC-4)**
    - 4.4.6 Media Changer Model**
    - 4.4.7 Real-time Streaming Record/Playback Model**
- 5 Parameters for Multi-Media Devices**
  - 5.1 Mode Parameters**
  - 5.2 Features and Profiles**

## 6 Commands for Multi-Media Devices

Several commands have slightly different behavior as applied to different physical media. The behavior may also vary with different logical formats.

Such commands will be separated into sub-clauses:

The READ CD and READ CD MSF commands will receive a new option that enhances audio play quality when the initiator plays DA data through a D/A converter other than that on the MM logical unit.

The INQUIRY data identifies products. A method for identifying a specific controller firmware version is desired even when the product identification data does not change. A proposal presented to the MMC WG will place this identification in a new feature descriptor.

- 6.x.1 Command Parameter Descriptions
- 6.x.2 General Behavior
- 6.x.3 Behavior when CD Media is Present and Ready
  - 6.x.3.1 CD-ROM
  - 6.x.3.2 CD-R
  - 6.x.3.3 CD-RW
  - 6.x.3.4 CD-MRW
- 6.x.4 Behavior when DDCD Media is Present and Ready
  - 6.x.4.1 DDCD-ROM
  - 6.x.4.2 DDCD-R
  - 6.x.4.3 DDCD-RW
- 6.x.5 Behavior when DVD Media is Present and Ready
  - 6.x.5.1 DVD-ROM
  - 6.x.5.2 DVD-RAM
  - 6.x.5.3 DVD-R
  - 6.x.5.4 DVD-RW
  - 6.x.5.5 DVD+R
  - 6.x.5.6 DVD+RW
  - 6.x.5.7 DVD+RW Basic Format
  - 6.x.5.8 DVD+MRW

Certainly most commands will not require each sub-clause of detail. The above listing represents the maximum reasonable expansion.

- Annex A (Normative) Implementation Notes: ATA Layer of ATAPI
- Annex B (Normative) Implementation Notes: SCSI Parallel Interface (SPI)
- Annex C (Normative) Implementation Notes: SCSI Serial Bus Protocol (SBP)
- Annex D (Normative) Implementation Notes: Universal Serial Bus (USB)
- Annex E (Normative) Implementation Notes: SCSI Fibre Channel Protocol (FCP)
- Annex F (Informative) Error Reporting
- Annex G (Informative) Features and Profiles
- Annex H (Informative) Event Reporting Using Get Event Status Notification
- Annex I (Informative) Power Management
- Annex J (Informative) Using the MRW Format

Additional Notes:

MMC-3 orders the commands clause prior to the parameters clause. The order is changed in MMC-4 in the belief that the document will have a better sense of order when features and profiles are defined prior to commands.

The MMC-3 annex that lists all possible SCSI commands has been removed. Other tables within the document make that annex redundant.

The MMC-3 annex that describes CD-Text has been removed since this information is more correctly included in the CD Model section.

In the MMC-3 annex on Features, the main subject is the rationale for the existence of features. Features and Profiles are replacing that annex for the purpose of explaining actual use.