

**INTERNATIONAL ORGANISATION FOR STANDARDISATION
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ISO-IEC/JTC1/SC29/WG11
CODED REPRESENTATION OF PICTURE AND AUDIO INFORMATION**

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Title: Preliminary DSM Control Command Requirements
Source: PTT Research (NL)
Purpose: Discussion

Applications

The envisage applications are:

1. Video on Demand
2. TV Network Databases
3. Simple Recording of Databases

'TV Network Databases' could be refined to:

1. Information retrieval from databases:
 - browsing through lots and lots of information (interactively)
 - finding information on a specific topic (issuing a query)
2. Distance education:
 - resuming a previous lesson
 - uploading answers to questions

There are probably far more ways to use (stored) MPEG encoded information. When we look at stored MPEG information in the same way as to any stored data. We should be aware that there already exists lots of ways to access (control) that information. For 'DSM Control' this means that we should try to extend existing mechanism with the 'DSM Control' module. 'DSM Control' should therefore focus on the specific (new) needs of controlling stored MPEG data.

Control Commands

There are two command sections:

Basic Controls

Play <file handle n> [<other parameter(s)>]
Fast Forward <file handle n> [<other parameter(s)>]
Fast Reverse <file Handle n> [<other parameter(s)>]
Stop <file handle n> [<other parameter(s)>]
Record <file handle n> [<other parameter(s)>]
Pause/Freeze <file handle n> [<other parameter(s)>]
Continue <file handle n> [<other parameter(s)>]
Goto Time <file handle n> <absolute time> [<other parameter(s)>]

Goto Relative Time <file handle n> [+<relative time>] [<other parameter(s)>]
 Goto Index Marker <file handle n> <index number> [<other parameter(s)>]
 Set Index Marker <file handle n> [<other parameter(s)>]
NB. Returns Index number.
 Delete Index Marker <File handle n> <index> [<other parameter(s)>]

The 'Goto Index Marker', 'Set Index Marker' and 'Delete Index Marker' are not special for MPEG data they can be used for textual information too. **It is our opinion is that the related functionality could be covered by means outside 'DSM Control'. A discussion on the desirability of these functions has to take place.**

MPEG Specific Controls

Select Audio Stream <file handle n> <n> [<other parameter(s)>]
 Select Video Stream <file handle n> <n> [<other parameter(s)>]
 Select Data Stream <file handle n> <n> [<other parameter(s)>]
 Select Defaults <file handle n> [<other parameter(s)>]
 Request System Multiplex [<video stream 1..n>] [<Audio Stream 1..n>] [<Data Stream 1..n>]
 [<other parameters>]

Advanced Commands

The related functionality "handle information packed in files" (e.g. Request File, Close File, Send File, Rename File, Delete File, etc.) is not unique for MPEG information. There exist many standardised mechanisms for performing these actions (e.g. FTAM). My opinion is that 'DSM Control' should not re-invent functions for such manipulations. Effort should be directed into selecting appropriate modules and combining them to enable (together with 'DSM Control') the required functionality for the above listed fields of application.

Functionality required for remote databases

Control of stored continuous information ('DSM Control')
 Control of information packets (file transfer e.g. FTAM)
 Access control (identification, authentication, etc.)
 Interactive information selection (see videotex commands)
 Database access (a query language e.g. SQL)
 linking information pieces together (kind of hypertext)
 Combining information types (media) (MHEG: composite objects)
 Building multimedia applications (e.g. MHEG scriptware, HyTime)

Conclusion

Above list hopefully convince you that:

- there is a lot more functionality required for building applications
- that there exist already solutions for most of the required functionality and
- 'DSM Control' somehow has to be encapsulated (combined) with the other modules.

Discussion has to take place on the following topics:

- Can we use MPEG CC in standalone application, and which.
- 'Where' fits MPEG CC in the 'complete picture' of an application.
- What are the exact boundaries of MPEG CC.