ISDCF-Doc3 – Distribution Device File System Recommendations
Update proposed 03 November 2009
Revised 21 November 2009

Due to some compatibility issues that have arisen recently, ISDCF may wish to consider additional recommendations for practices affecting distribution media for DCPs.

For review, the following ISDCF recommendations have existed for some time now, but should be restated for confirmation and reference. These previous recommendations have been slightly expanded for clarity and specificity. The group should consider modifying the wording if anything is incorrect or unclear.

(Slightly Expanded) Existing Recommendations

1. Distribution media devices, playback servers, and theater-based library servers should support the USB2 data interface presently and for the near future, at least until existing systems are retired.

2. Future distribution media devices, playback servers, and library servers should include eSATA support where practical, but only to extend, not to replace USB2 support.

3. The storage partition format should be EXT3.

4. Optical media such as DVD or CD may be used where appropriate. If DVD format is used, the disks should be single-sided, single-layered, 4.7 GB data format. The storage partition format should be UDF.

5. Playout servers and library servers should include means of reading CDs and DVDs as specified above. External USB reader units may be used if internal readers are impractical.

Proposed New Recommendations (November 2009)

1. Allow EXT2 for storage format partitions. EXT2 is EXT3 without a journal, and a journaled file system is of questionable value for a distribution format.

2. Devices whose function is to read distribution media should mount the media in read-only mode where practical. This should reduce the possibility of file system damage when the media is removed from the system without a clean unmount operation performed. While preventing unclean unmounts is physically impossible with USB drives, if distribution drives are mounted read/write, every

effort should be made to perform a clean unmount operation before the device is disconnected.

3. Distribution disks shall contain a standard “MBR” partition table. This is meant to specifically exclude “GPT”, “BSD”, and other partition table types. The MBR partition table shall contain one and only one partition record. The single partition record shall be the first Primary partition record. The partition identifier shall be 0x83, indicating a Linux native partition.

4. The distribution media partition shall be formatted in either the EXT2 or the EXT3 format. When the file system is formatted, the inode size shall be set to 128 bytes.

5. Per SMPTE 429-9-2007, the storage volume (partition) shall contain exactly one Asset Map.

6. If a USB “Thumb Drive” is to be used for any purpose in a digital cinema system, it should be reformatted to a clean state prior to use. (This is intended to prevent the spread of virus code that has been detected on commercial “thumb drive” products.)

7. When distribution devices are mass-duplicated, care should be taken to assure that the target drives are as large or larger than the master drive in order to prevent illegal partitions from being created by the duplication system.

8. Distribution service providers should recognize that the current deployed base of player and library systems in the field may already be several years old, and are expected to have an extended lifetime relative to typical computer system installations. Thus the temptation to upgrade to the latest and greatest new operating system software for mastering and duplication should be resisted, and new systems should be thoroughly vetted for backward compatibility prior to deployment.

9. Theater operators should maintain, at each location, spare USB cables, and power supply cables, and “power bricks” to account for the possibility of defective pieces that may be supplied with distribution devices.

10. When files and directories are written to a distribution media partition, the permissions shall include the following settings: Files shall allow “read” permission for “Other” users. Directories shall allow “read” and “execute” for “Other” users.

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