Overview of the revisions to the DCF and Exif standards

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Camera Imaging Products Association

Standardization Committee

Design rules for the Camera File system (DCF), as a companion to the Exif format (Exchangeable image file format for digital still cameras), have contributed importantly to the popularity of digital still cameras (DSC) by enabling image files to be exchanged among a variety of media and devices.

The DCF and Exif standards have recently been revised.   They are to be issued as DCF Version 2.0 and Exif Version 2.21, respectively, by JEITA.

1.　　Revision of the DCF standard

(1)　Purpose

In CDF Version 1.0 (DCF 1.0), sRGB color space defines how to record the image in the DCF basic files.   On the other hand, in the professional field, another color space is used. This difference made it difficult to use the image data recorded by CDF 1.0 in the professional uses. So data conversion was needed.

In the revised DCF Version 2.0 (DCF2.0), image data defined by not only sRGB color space but also Optional Color Space (see note1). Both images can be recorded as Exif compressed format (JPEG format) files.   This revision is therefore made only to support a specific existing color space (Optional Color Space), and is not intended to allow for other extended color space.   The Writer and Reader specifications also have been revised to adopt this revised DCF.

(2) Main revisions

2-1 Additional definition of DCF optional files

DCF optional files have the following characteristics.

- Image data made by DCF optional color space is recorded as DCF optional file.   The file name shall begin with "_".
- A newly defined Interoperability Index value is recorded to identify a DCF optional file.
- The Color Space tag is assigned a certain value different from sRGB.
- Tags indicating the characteristics of the optional color space (WhitePoint,, PrimaryChoromaticities, YCbCrCoefficient, Gamma) are recorded in a DCF optional file.

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2-2 Revision of the Writer and Reader specifications

- In addition to the existing Writer specifications applying to DCF directories, these directories are now able to contain DCF optional files.
- In addition to the existing specifications applying to Reader 1 products, they are now able to display DCF optional file thumbnails.
- Display of DCF optional files by a Reader 2 product is optional.

(Note 1) DCF optional color space

The optional color space specified here, which has advantages in the professional printing industry workflow, is defined with the equivalent color gamut as Adobe RGB color space in wide use by professional photographers, the prepress industry such as DTP, and designers.

2. Revision of the Exif standard

(1) Purpose

The Exif standard has been partially revised to accommodate the above revision of the DCF. In addition, it has been revised in order to improve ease of use. This is an amendment to the Exif standard.

(2) Main revisions

- The value that is written on the ExifVersion tag, has been changed to "2.21".
- The Gamma tag has been added.
- Definition of ColorSpace tag has been changed.
- The permissive value of InterOperabilityIndex tag has been added.
- Definition of the Flash tag has been changed.
- The permissive value of the FileSource tag has been added.
- The level recorded in the TransferFunction has been changed.
- Description of the pixel composition and sampling has been changed.