

Representing Multi-Level Images with JBIG-2.

Proposed Details:

A Multi-Level image is composed of several planes, where each plane is a JBIG-2 page.

The number of planes of the Multi-Level Image is MLPLANES, and is equal to the number of referenced segments in the Multi-Level Segment Header.

The referenced segments shall be Page Information Segments, and each page Information Segment shall have the same height and width.

Extension Type:

0xE0000010 Multi-Level Image

A Multi-Level Image has the following fields:

- Multi-Level Page Number
- Multi-Level Flags
- Multi-Level Palette Data

Multi-Level Page Number

This is a four-byte field representing the page number of the multi-level image.

Multi-Level Flags

This is a one-byte field formatted as follows:

Bit 0 MLREVERSE

If this bit is **1**, then the referenced pages represent the planes of the multi-level image ordered from highest to lowest. If this bit is **0**, then the referenced pages represent the planes ordered from lowest to highest.

Bit 1 MLXOR

If this bit is **1**, then the first referenced plane is coded directly, and each subsequent plane coded as the XOR of the previous plane, in the same manner as Gray-Scale images in Annex C. If this bit is **0**, then each plane is coded directly. *Note: it may be desirable for colour images to code the base plane for each colour (R,G,B) directly.*

Bit 2 MLCOLOUR

If this bit is **1**, then the Multi-Level image has colour values. If this bit is **0** then the Multi-level image is a gray-scale image.

Bit 3 MLPALETTE

If this bit is **1**, then the colour values of the Multi-Level image are determined from the Palette section. If this bit is **0** then the colour values of the Multi-Level image are determined according to the following rules:

If MLCOLOUR is **0** then the colours shall be gray-scale intensities ranging from 0 (black) through to $2^{\text{MLPLANES}} - 1$ (white).

If MLCOLOUR is 1, then MLPLANES shall be divisible by three. The bits shall correspond to a triplet of RGB colour intensities ranging from 0 (no colour intensity) through to $2^{\text{MLPLANES}/3} - 1$ (full colour intensity).

Multi-Level Palette Data

This section is only present if MLPALETTE is **1**.

If MLCOLOUR is 0, then this section contains 2^{MLPLANES} bytes, with each byte corresponding to a gray-scale intensity ranging from 0 to 255.

If MLCOLOUR is 1, then this section contains $3 \cdot (2^{\text{MLPLANES}})$ bytes, with each 3-byte sequence corresponding to an RGB triplet of intensities ranging from 0 to 255.