



Standard Guide for Forensic Digital Image Processing¹

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1. Scope

1.1 This guide provides digital image processing guidelines to ensure the production of quality forensic imagery for use as evidence in a court of law.

1.2 This guide briefly describes advantages, disadvantages, and potential limitations of each major process.

2. Referenced Documents

2.1 ISO/IEC Standard:²

ISO/IEC 10918-1:1994 Information technology—Digital compression and coding of continuous-tone still images: Requirements and guidelines (JPEG) (also published as CCITT Recommendation T.81 (1992))

2.2 SWGIT Material:³

SWGDE/SWGIT Glossary SWGDE and SWGIT Digital & Multimedia Evidence Glossary, updated June 8, 2012

3. Terminology

3.1 Definitions:

3.1.1 *artifact*, *n*—visual/aural aberration in an image, video, or audio recording resulting from a technical or operational limitation. **SWGDE/SWGIT Glossary**

3.1.1.1 *Discussion*—Examples include speckles in a scanned picture or “blocking” in images compressed using the JPEG standard.

3.1.2 *compression*, *n*—process of reducing the size of a data file (see *lossy compression* and *lossless compression*). **SWGDE/SWGIT Glossary**

3.1.3 *grayscale image*, *n*—continuous tone image that has only one component. **ISO/IEC 10918-1:1994**

3.1.4 *grayscale transformation*, *n*—operation that modifies a single channel or component of image data (for example, a single color).

3.1.5 *image*, *n*—imitation or representation of a person or thing, drawn, painted, photographed, and so forth. **SWGDE/SWGIT Glossary**

3.1.6 *image enhancement*, *n*—any process intended to improve the visual appearance of an image or specific features within an image. **SWGDE/SWGIT Glossary**

3.1.7 *lossless*, *adv*—descriptive term for encoding and decoding processes and procedures in which the output of the decoding procedure(s) is identical to the input to the encoding procedure(s). **ISO/IEC 10918-1:1994**

3.1.8 *lossless coding*, *n*—mode of operation that refers to any one of the coding processes defined in this guide in which all of the procedures are lossless. **ISO/IEC 10918-1:1994**

3.1.9 *lossless compression*, *n*—compression in which no data are lost and all data can be retrieved in their original form. **SWGDE/SWGIT Glossary**

3.1.10 *lossy*, *adv*—descriptive term for encoding and decoding processes that are not lossless. **ISO/IEC 10918-1:1994**

3.1.11 *lossy compression*, *n*—compression in which data are lost and cannot be retrieved in their original form. **SWGDE/SWGIT Glossary**

3.1.12 *noise*, *n*—variations or disturbances in brightness or color information in an image that do not arise from the scene. **SWGDE/SWGIT Glossary**

3.1.12.1 *Discussion*—Sources of noise include film grain, electronic variations in the input device sensor and circuitry, and stray electromagnetic fields in the signal pathway. It frequently refers to visible artifacts in an image.

3.1.13 *original image*, *n*—accurate and complete replica of the primary image, irrespective of media. **SWGDE/SWGIT Glossary**

3.1.13.1 *Discussion*—For film and analog video, the primary image is the original image.

3.1.14 *primary image*, *n*—first instance in which an image is recorded onto any media that is a separate, identifiable object. **SWGDE/SWGIT Glossary**

3.1.14.1 *Discussion*—Examples include a digital image recorded on a flash card or a digital image downloaded from the internet.

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² Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

³ Available from Scientific Working Group on Imaging Technology (SWGIT), <http://www.swgit.org>.