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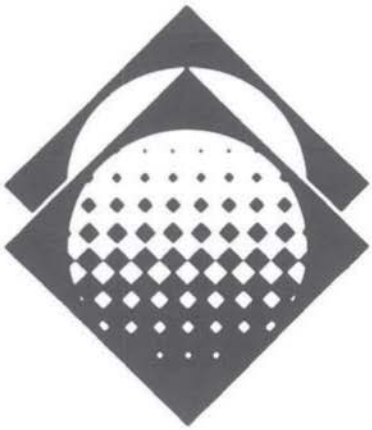

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STATUS OF CGATS.12

USING PDF FOR DIGITAL DATA EXCHANGE

Stephen N. Zilles*

Keywords: Data, Electronic, Files, Standards

Abstract: The Portable Data Format (PDF) is a format for representing composited electronic documents for the purpose of exchanging the document between a sender and a receiver that may not have had any prior communication. PDF provides an object based representation of the content of the electronic document; that is, there are different representations for the objects, the text, geometric graphics and raster images, of which the document is comprised. These object based representations efficiently encode the various object types and also provide a reproduction-device-independent representation of the digital data. The Committee for Graphics Arts Technologies Standards (CGATS) is developing a standard, CGATS.12, for the exchange of digital data using PDF. This work is motivated by the desire to allow the electronic transmission of the creative work of the graphic artist throughout the production workflow to final production either as a final image on media or a surrogate for that image, such as a printing plate. To avoid dependence on the set of applications used to create a graphic presentation, a standard format is necessary to allow transmission of the digital work through prepress shops to the publisher and on to the printer. The DDAP (Digital Distribution of Advertising for Publications) Association has been instrumental in encouraging and supporting this standardization. This paper provides an overview of PDF and a PDF workflow and describes how PDF can be used in conjunction with raster based workflows.

Background

There have been two approaches taken to the preparation of digital, electronic representations of graphics arts presentations. In one approach, *raster-based*, the entire presentation is represented in terms of raster images, both those scanned from traditional sources, such as

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photographs, and synthetically created images such as text composed on a computer system. In the other approach, *object-based*, the representation of the presentation is based on the type of object, such as text, geometric graphics and raster images, being represented. For example, text is represented as character strings plus a font to be used to render the character string; geometric graphics are represented using commands to draw the graphic and raster images are represented as rasters. Because the second approach uses distinct representation approaches for the object types within the document, the total representation is quite efficient and is independent of the resolution of the (often unknown) reproduction device on which the digital document is to be realized.

A raster-based format in which all of the "objects" have been rasterized; that is converted into some portion of an array of color picture elements or pixels at a resolution suitable for the intended reproduction device. Because the raster representation is closer to the direct inputs of the reproduction device, the process of generating film, plates or final impressions is simpler and has a more predictable time scale.

Both object-based and raster-based formats complement each other: a raster-based format provides the tightly bound representation for which most of the rasterizing decisions have been made and an object-oriented format provides as representation that is more flexible, which can be adapted to more kinds of reproduction processes and resolutions. The flexibility of object-based formats also provides a greater capability for correction of errors in the content when that is necessary and it provides for personalization, such a local address lists, bingo card numbers, of the content of an advertisement.

Publications and other presentations may combine material distributed in either format. For example, a publication may have its editorial content in an object based format and have two partial page advertisements, one in an object-based format and the other in a raster-based format. This requires that both raster-based and object-based formats can be combined to produce a "final" presentation.

The raster-based approach is the subject of the companion paper by David McDowell in this volume on the status of TIFF/IT. TIFF/IT is a standard raster-based format which is based on the output formats used by Color Electronic Pre-press Systems. This paper presents an overview of PDF which is an object-based format and the basis for CGATS.12, a standard for PDF eXchange or digital pre-press data, also known as PDF-X.

Object-based Exchange formats

There are several widely used, object-based exchange formats based on what is now called the Adobe Imaging Model. This imaging

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