JPEG Technical Specification
Adobe Developer Support

Revision 9

1 May 1992

Adobe Systems Incorporated
Adobe Developer Technologies
345 Park Avenue
San Jose, CA 95110
http://partners.adobe.com/

PN LPS5083
Copyright ©1991–1992 by Adobe Systems Incorporated. All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written consent of the publisher. Any software referred to herein is furnished under license and may only be used or copied in accordance with the terms of such license.

PostScript, the PostScript logo, Adobe, and the Adobe logo are trademarks of Adobe Systems Incorporated which may be registered in certain jurisdictions. Other brand or product names are the trademarks or registered trademarks of their respective holders.

This publication and the information herein is furnished AS IS, is subject to change without notice, and should not be construed as a commitment by Adobe Systems Incorporated. Adobe Systems Incorporated assumes no responsibility or liability for any errors or inaccuracies, makes no warranty of any kind (express, implied or statutory) with respect to this publication, and expressly disclaims any and all warranties of merchantability, fitness for particular purposes and noninfringement of third party rights.
Introduction

The PostScript Language Reference Manual, Second Edition states that the DCTEncode and DCTDecode filters are compatible with JPEG Revision 8, August 14, 1990. The committee preparing the international standard is ISO/IEC JTC1/SC2/WG10 Photographic Image Coding. Prior to establishing WG10 in 1990, the committee existed as an ad hoc group known as the Joint Photographic Experts Group (JPEG), of ISO/IEC JTC1/SC2/WG8. Both the committee and the image coding processes it has developed are known informally by the name JPEG.

According to members of the JPEG committee, revisions 8-R3 through 9-R7, which is the version attached, are identical in technical content and vary only in the exposition of the material. Furthermore, they believe that the technical content will not change when the JPEG/WG10 document is finally approved as an international standard. In other words, the implementation of the JPEG standard in the PostScript™ Level 2 interpreter is compatible with all earlier revisions of the JPEG draft standard from 8-R3 up to the latest 9-R7 revision, and it is likely to be compatible with what eventually becomes an international standard.

The earlier revision 8-R2, which was superseded by 8-R3 in July, 1989, differed technically in that it used 32-bit Huffman codes and was little-endian; whereas the 8-R3 to 9-R7 revisions are limited to 16-bit Huffman codes and are big-endian. There might be other differences of which we are unaware.

The PostScript language DCTEncode and DCTDecode filters deal with the format called the JPEG Interchange Format in the 9-R7 draft. The PostScript interpreter implements the Baseline method and several other parts of the JPEG specification, as discussed in this document, and has several extensions and limitations also discussed here.
With respect to the JPEG specification, the **DCTDecode** filter will decode any JPEG baseline compressed image in the JPEG Interchange Format (see *JPEG-9-R7: Working Draft for Development of JPEG CD, 14 February 1991*) subject to the following restrictions:

- The image can consist of only one scan containing one, two, three, or four colors. Images specifying a larger number of colors, having more than one scan, or having more than one frame will not be decoded.

- Zero-size images (*Columns* = 0 or *Rows* = 0) are illegal.

- DNL markers are not decoded. (DNL markers are defined in the JPEG specification.)

The **DCTDecode** filter will decode any file produced by the **DCTEncode** filter. In particular

- It will interpret the Adobe™ application-specific marker codes produced by the **DCTEncode** filter. These markers are compatible with, but not part of, the JPEG Baseline specification.

- It will perform optional YCC-to-RGB or YCCK-to-CMYK color coordinate conversions that are not part of the JPEG specification.

*Note* This document is redistributed with the permission of the Joint Photographic Experts Group. The publication and information herein is furnished AS IS, is subject to change without notice, and should not be construed as a commitment by Adobe Systems Incorporated. Adobe Systems Incorporated assumes no responsibility or liability for any errors or inaccuracies, makes no warranty of any kind (express, implied, or statutory) with respect to this publication, and expressly disclaims any and all warranties of merchantability, fitness for particular purposes, and non-infringement of third party rights.