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## AppleCD Family and Kodak Photo CD (8/93)

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TOPIC -----

There are two levels of support available for Kodak's Photo CDs. The first and most basic level is the ability to read the Photo CD itself. The second level is the ability to deal with more than just the initial session of a multisession CD. The AppleCD 300 and 300i are the first CD-ROM players from Apple to support multisession Photo CD.

DISCUSSION -----

MODE 1 and 2  
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To achieve the first level, Kodak's Photo CD requires a CD-ROM drive that provides Mode 2/Form 1 services.

CD-ROM Mode 1 is the standard ability to read CD-ROMs. A CD-ROM drive must support this mode to be considered a CD-ROM drive.

CD-ROM Mode 2 allows for additional capabilities. In relation to Photo CDs, the CD-XA Form 1 is the most important element. Mode 2/Form 1 allows the Photo CD to be recognized and read.

Additional software is required to understand what is being read. Kodak's developer's toolkit helps third-party developers to add the ability to read in the Photo CD's images. QuickTime 1.5 and later allows you to use Photo CD images on the Macintosh. This allows any Macintosh with the proper software installed, and with a Mode 2/Form 1 CD-ROM drive attached, to read Photo CDs.

Multisession  
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To provide the multisession support, the first level must be in place and then the CD-ROM drive needs to understand to look past the "lead-out" area of the first session to find the second session's "lead-in" area.

The Photo CD concept allows the customer to send the CD back to a Kodak photofinisher to add additional images to the CD. Each time images are added to the CD, the process is called a session. Since images can be added at different times, the CD is known as multisession.

The different sessions of the multisession CD-ROM consist of a lead-in area, data, and a lead-out area. Thus a multisession CD would have repeating sequences of lead-in areas, followed by data, followed by lead-out areas. For example:

```
lead-in area
data for session 1
lead-out area
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lead-in area
data for session 2
lead-out area
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and so on

For a CD-ROM drive to read past the initial session, the drive must understand how to deal with multiple lead-in and lead-out areas. Normally, a CD-ROM will have only one lead-in/lead-out combination. This is because, traditionally, most CD-ROMs can be written to only once. Thus, most CD-ROM drives are designed to recognize one set of lead-in/lead-out areas. Once a lead-out area is located, most of the older CD-ROM drives will consider that lead-out area the end of the CD-ROM.

With newer technology available, the ability to write additional information resulted in the use of the multisession procedure (that is, the Kodak Photo CD). This procedure means that a CD-ROM drive must understand how to look past the lead-out area to see if another lead-in area exists.

The AppleCD SC (Apple's original CD-ROM drive) doesn't support the Mode 2/Form 1 format; however, if using 4.01 or higher of the CD driver, it can read any Kodak Photo CD (single session only).

The AppleCD SC Plus (Apple's second version of the CD-ROM drive) does support the Mode 2/Form 1 format; however, it doesn't support multisession. Therefore, the AppleCD SC Plus can read the Kodak Photo CD, but can only read the first session. The AppleCD SC Plus won't read additional sessions.

Like the AppleCD SC Plus, the AppleCD 150 Drive (Apple's third version of the CD-ROM drive) does support the Mode 2/Form 1 format; however, it doesn't support multisession. Similarly, the AppleCD 150 Drive can read the Kodak Photo CD, but can only read the first session. The AppleCD 150 Drive won't read additional sessions.

The AppleCD 300 and AppleCD 300i (the internal model) do support multisession Photo CDs.

#### Article Change History:

30 October 1992 - Corrected to explain that the AppleCD SC drive (original CD-ROM drive) does support a Kodak Photo CD with certain restrictions.

3 August 1993 - QuickTime 1.5 or later reads Photo CD images.

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