



# The Enhanced CD Fact Book

version 2.0



*Masters of Media*



# The Enhanced CD Fact Book

Version 2.0

by Josh Warner

Sponsored by Apple Computer, Inc.  
Developer Relations Group  
for the Apple Media Program

Version 2.0 Produced by Dana De Puy Morgan  
Version 1.0 Produced by Mira Crisp



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## Introduction

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It's always nice when you get the information you need. The *Enhanced CD Fact Book 2.0*, sponsored by the **Apple Media Program**, is for everyone who wants to know about **enhanced CD** (ECD). Whether you want to create your own enhanced CD or play your favorite ECD release, you've come to the right place.

Go to the section that interests you most. You'll find everything you need on that topic. If you're reading this online when you see a Web address that's highlighted, click on it and you'll find even more information.



# What Consumers Need to Know About Enhanced CD

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## What is enhanced CD?

It's a compact audio disc that does more than play music. Of course, you can listen to it like a regular audio CD and hear music or whatever else has been recorded on the disc. But you can also play it in the **CD-ROM** drive of your computer and experience video, graphics, and text.

## Why should I buy enhanced CD?

If you've got a computer with a CD-ROM drive, it makes sense to get an enhanced CD. You can listen to music but can also see videos and interviews of your favorite artists. You can read lyrics and some ECDs even link you directly to artists' Websites.

## How is enhanced CD different from CD-ROM?

Most CD-ROMs you buy today may be played on the CD-ROM drive of your computer. That's the only way you'll get at what's important—the interactive media. But enhanced CD is different. The primary focus of enhanced CD is music. The interactive media is the bonus.

## Where do I buy enhanced CDs?

You can buy ECDs wherever you shop for music. Some record stores even have special ECD bins. Otherwise, you can find them in the same place as you would regular music CDs including bookstores like Barnes & Noble. You can also find enhanced CDs in many computer software resellers and catalogues.

## Can I buy enhanced CDs on the Internet?

The Internet is a popular place to buy music CDs. But if you're looking for the most complete source of information on ECDs, The **Enhanced CD Database** <http://www.musicfan.com> is the place to go. It's got a search engine to help you find exactly what you're looking for. Yet most music sales sites on the Web carry enhanced CDs, so chances are you'll find what you're looking for wherever you browse.

## How do I know its enhanced CD?

Most enhanced CDs have a logo on the outside of the CD that tells you it's more than a regular audio CD. Sometimes the information is on the inside. But you can expect most enhanced CDs to be clearly marked.

## Do enhanced CDs cost more than regular CDs?

Most enhanced CDs are the same price as regular audio CDs because record companies don't want to discourage people from buying them. But prices vary. Shop around and find the best price.



Most enhanced CDs have a logo on the outside of the CD that tells you it's more than a regular audio CD.

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### **Will my regular audio CD player play enhanced CD?**

It's likely the enhanced CD you buy will play in your audio CD player.

### **What kind of computer do I need to play enhanced CD?**

A regular or multimedia-capable Macintosh or Windows computer should do. Any computer using OS/2, Unix, Amiga, or Windows NT won't. The newer, the better.

### **What are the system requirements to play enhanced CD on my computer?**

You'll probably need at least 4MB to 6MB of free **RAM** and a double-speed or faster CD-ROM drive. Macintosh System 7, Windows 95, or Microsoft Windows 3.1 or greater is recommended. But make sure you read the system requirements before you buy your enhanced CD.

### **Do I need anything special to see videos on my enhanced CD?**

You'll need to have, or install, **QuickTime** for Macintosh or Windows. Most computers already have QuickTime installed.

If you don't have QuickTime, you can download the latest version free-of-charge at the Apple QuickTime site <http://www.quicktime.apple.com>. QuickTime is Apple's interactive media standard that makes it possible for users to view and edit video, music, text, animations and other dynamic information.

### **What is CD EXTRA?**

**CD EXTRA** is a registered trademark name of **Sony** Corporation and represents a new format of enhanced CD based on the **Blue Book** standard endorsed by Sony and **Philips**.

### **What technology does Blue Book use?**

Blue Book uses a technology called **stamped multisession** which puts music and interactive media on the same compact audio disc in two separate pressings.

### **Why is it called Blue Book?**

Blue Book is the actual book that contains the specifications for enhanced CDs that use stamped multisession technology.

### **How is CD EXTRA different from CD Plus?**

CD EXTRA is what was previously called CD Plus.

## Section One

What Consumers  
Need to Know  
About ECD



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### **Why won't Blue Book enhanced CDs play on my computer?**

If you got your CD-ROM drive before 1996, you might not have a multisession drive. This is the kind of drive you need to play Blue Book enhanced CDs on your computer. You might have a single session drive. In that case, you'll need to buy a newer CD-ROM drive that supports multisession.

### **Why won't pre-gap enhanced CDs play on my computer?**

It's probably because you're playing the ECD on a Windows 95 machine. Microsoft no longer supports **pre-gap** enhanced CDs with their newer CD drivers.

### **How do I know my CD-ROM drive won't play Blue Book enhanced CDs?**

If you're running Windows and perform the install or set-up of your Blue Book enhanced CD, your drive will constantly report "no disc in drive" or "abort, retry, fail."

You might want to check out Sony's Troubleshooting Tips Website. For PCs, go to: <http://www.sony.com/Music/CDEXTRA/trblepc.html>. For Macintosh systems, go to: <http://www.sony.com/Music/CDEXTRA/trble.html>.

### **What else do I need to play Blue Book enhanced CDs on my computer?**

To play a Blue Book enhanced CD on your computer you'll also need software drivers that can read this type of disc. Without these drivers, a computer won't be able to see the enhanced disc's interactive media features.

Most Macintosh and Windows 95 computers bought after 1995 have CD-ROM drivers that read Blue Book ECDs. But you might need new drivers for Windows 3.1, 3.11, and Macintosh environments made before 1995.

### **How to find out if your PC is Blue Book compatible.**

To find out if you have a multisession-capable driver, download the Corel Enhanced Music Advisor (<http://www.corel.com/cdrivers/advisor.zip>). The Music Advisor will tell you if you have a Blue Book-capable drive to read Blue Book ECDs on your PC.

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### Where to go for new drivers for your PC.

You may need to contact your CD-ROM drive manufacturer to get an updated driver for your PC. Be patient. Multisession is still new to some manufacturers. The following is a list of CD-ROM drive manufacturers and their tech support numbers.

Chinon 800-441-0222	Media Vision 510-770-9905	Ricoh 800-955-3453
Compaq 800-652-6672	Mitsumi 415-691-4469	Sanyo 800-421-5013
Denon 210-575-7810 x492	Nakamichi 800-421-2313	Smart & Friendly 818-994-8001
Goldstar 800-777-1192	NEC 800-388-8888	Sony 408-894-0555
Hitachi 800-241-6558 x22	Panasonic 800-890-3219	TEAC 800-888-4923
IBM 800-426-3333	Philips 719-593-4207	Texel 800-475-3986
JPN 510-510-3962	Pinnacle Micro 714-789-3200	Toshiba 800-999-4273
JVC 800-488-0991	Pioneer 800-872-4159	Wearnes 408-432-1887
Kodak 800-235-6325	Plasmon 800-445-9400	Yamaha 408-467-2300
LMSI 714-632-2656	Plextor 800-475-3986	
Microboards 800-646-8881	Procomm 800-800-8600	

### Where to get Blue Book Drivers for Macintosh.

Go to the Apple support and upgrade site or the AMP site to download the latest CD-ROM drivers to read Blue Book enhanced CDs on your Macintosh.

<http://support.info.apple.com/ftp/mirrors.html>

[http://www.amp.apple.com/imt/downloads/AIMT\\_Installer.sea.hqx](http://www.amp.apple.com/imt/downloads/AIMT_Installer.sea.hqx)

### Where do I go for more ECD Driver information?

The Sike Software Website has a ECD Driver FAQ that might help you.

<http://users.aol.com/sike1234/s-faq.html>



## Evolution of Enhanced CD

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Last year, The Rolling Stones, Bonnie Raitt, Bush, and Leonard Bernstein released enhanced CDs. But not just **platinum**-selling artists or famous conductors get to produce enhanced CDs. Many lesser-known artists, as well as a variety of record labels, experiment with the format.

### ENHANCED CD AS MARKETING TOOL

Having superior sound and interactive media on one disc allows advertisers, magazines, and consumer companies to show off their products with enhanced CDs. 21st Century Media, a San Francisco area developer, created an enhanced CD that uses **QuickTime VR** to tour ten of the world's top recording studios. (See Case Study: *Prestige Recording Studios of the World ECD*.)

#### **Why should I be interested in enhanced CD?**

If you're a business like the recording studios that hired 21st Century Media, enhanced CD might be a better way to market your product. If you're a software developer, you can create enhanced CDs for companies who want them. If you're a musician, you might want your next CD to be enhanced to further display your talent. Or you might be a fan who wants more than just music.

#### **How do you enhance a CD?**

Most music CDs only contain 50 minutes of audio, but can hold up to 74 minutes of audio. That leaves space for interactive media and a better consumer product.

#### **Enhanced CD went through books to get to where it is today.**

You find information you need in books. The same is true for enhanced CD—it went through different 'books' to get to where it is today.

##### THE **RED BOOK**

The first book came in 1981 when Sony and Philips published a standard for audio CD called the Red Book. Named for the color of the jacket, the Red Book established a universal set of physical characteristics for the audio CD.

As a result, all CD-player and disc manufacturers make their product the same way, and each audio CD plays and sounds the same when put in any audio CD player, regardless of manufacturer.

##### THE **YELLOW BOOK**

In 1986, Sony and Philips published a new book—the Yellow Book—that defined the CD-ROM format for multimedia-capable personal computers, or MPCs. These are the CD-ROMs you buy today to use in your computers.

“A good part of our team comes from the pro audio and recording industries. I wanted to demonstrate that enhanced CD as a medium is not just for bands, but can be used as a powerful marketing tool anywhere high-quality audio is required.”

Jim Baker, President and CEO  
21st Century Media

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#### THE BEST BOOKS OF BOTH WORLDS

If you're keeping your books straight, you can guess what happened next. Software developers mixed the two standards, or books, together to get the best of both worlds—a CD that can play music when put in your audio CD player and that can display interactive media content when put in the CD-ROM drive of your computer.

#### THE BLUE BOOK

Sony and Philips recently unveiled a new color, and a new standard—the Blue Book. It formalizes the specifications for enhanced CD and is based on a technology called stamped multisession. Like it sounds, the technology allows two separate sessions to be stamped, or placed, on the same compact disc. The Red Book audio plays first in its own separate session, followed by the second interactive media session on the disc.

The audio CD player reads the audio portion of the disc without seeing the interactive media. That means the enhanced CD that follows the Blue Book standard plays and sounds exactly like a regular audio CD.

#### **Blue is good for music fans.**

Blue Book enhanced CDs are 100 percent compatible with audio CD players. They don't require as much of an adjustment from the music consumer. That's why Blue Book has the support of the music industry and enhanced CDs are being developed according to Sony and Philips' Blue Book standard.

#### **The first enhanced CD was mixed.**

It wasn't always this way. In 1994, the first enhanced CDs were called mixed-mode. Aptly named, mixed-mode had a CD-ROM Yellow Book track and a CD Red Book audio track share space on the same disc. But mixed-mode required you to manually skip over the first track when playing the disc in a standard audio CD player. That's because the first track had the interactive media content.

#### **A good start but mixed reaction by music industry.**

Unfortunately, audio CD players read Yellow Book, or interactive media, as nasty noise or no sound at all. It wasn't until the CD player got to the Red Book audio on the second track that it sounded like a regular audio CD again. Consequently, mixed-mode didn't get much support from the music industry.

#### **Pre-gap work around.**

It wasn't long before enterprising developers discovered a work around to what was known as the "track one" problem. Developers hid the CD-ROM portion of the enhanced CD in the gap before the first track of audio.

You no longer had to manually skip the first track when playing pre-gap enhanced CDs in your audio CD player. That's because the interactive data in the pre-gap area is generally unnoticed by the audio CD player.

## Section Two

Evolution of  
Enhanced CD



### **Pre-gap drawbacks.**

Yet there were drawbacks. If you pressed rewind long enough on your CD player, you could back into the interactive data in the pre-gap area. If that happened, you might hear a warning telling you to stop before you got to that nasty noise.

In 1996, most enhanced CDs were pre-gap. Now most everyone is building enhanced CDs to the new Blue Book standard.

### **How do you recognize Blue Book enhanced CDs?**

You may recognize Blue Book enhanced CDs by the Enhanced CD logo on the jewel case of the CD. You may also recognize Blue Book enhanced CDs by the CD EXTRA logo on the jewel case of some CDs. CD EXTRA is the registered trademark name used by Sony. Make sure you also look at the System Requirements. They will tell you if you need a multisession compatible CD-ROM drive.



CD EXTRA represents a new format of enhanced CD based on the Blue Book standard endorsed by Sony and Philips. The logo may be on the jewel case of some CDs.

### **Blue Book needs certain things to work in your computer.**

To play Blue Book enhanced CDs in the CD-ROM drive of your computer, you need to have software drivers that can read multisession discs. Without these drivers, a computer won't be able to see the disc's interactive media features.

All new Macintosh, Windows 95 and most other computers have drivers that read Blue Book. But you might need new drivers for Windows 3.1, 3.11, and Macintosh environments made before 1994.

However, all Macintosh and most multimedia PCs on sale today support Blue Book enhanced CDs. And most popular multimedia kits, such as Sound Blaster, support multisession.

### **One more thing—the multisession drive.**

Besides the new drivers, you'll need one more thing—a multisession-capable CD-ROM drive. That's the only way your CD-ROM drive knows it's reading a Blue Book enhanced CD. If you have a Macintosh, you probably have a multisession CD-ROM drive. Windows 95 now allows Windows users to read multisession too.

### **Step forward with Blue Book.**

The music industry is behind Blue Book. That's important for ECD developers. Developers need to know the format is backed by the industry that can make it a success. Apple worked with Sony and Philips (the original patent holders of the CD audio Red Book and CD-ROM Yellow Book standards), and with the Recording Industry Association of America (**RIAA**) and Microsoft to define the Blue Book specification.

## David Leibowitz

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David Leibowitz  
Executive Vice President and  
General Counsel,  
Recording Industry Association of  
America (RIAA)

David Leibowitz, the chief legal officer of the Recording Industry Association of America (RIAA), protects the rights and interests of the recording industry on Capitol Hill.

### **What is the RIAA definition of enhanced CD?**

The RIAA “Enhanced CD” Voluntary Specification defines an enhanced CD as a compact disc that combines “Red Book” audio and “Yellow Book” data on one manufactured disc and retains Red Book compatibility and compliance with audio players.

### **What formats are included under the enhanced CD definition?**

The definition includes, but is not limited to, the following format methods:

- a) the Single Session Enhanced CD (sometimes referred to as “Pre-Gap”) format;
- b) the Philips/Sony “Blue Book” specification known as the “CD EXTRA” format; and
- c) the Philips/Sony “Yellow Book” multisession Compact Disc specification known as the multisession format.

### **What logo is recommended by the RIAA for ECD?**

The RIAA recommends, but does not require, that enhanced CD products use the RIAA “Enhanced CD” certification mark. Use of this mark is available under a royalty free license agreement with the RIAA. You can get the Enhanced CD logo from the RIAA by contacting:

Rush Jones  
Recording Industry Association of America  
1020 19th Street, NW, Suite 200  
Washington, DC 20036  
Tel: 202-775-0101

In addition, enhanced CD products may also include logos relating to specific format specification; for example, the “CD EXTRA” logo for Blue Book discs.

### **Where do you get the Blue Book specification?**

The Blue Book specification is available through Sony/Philips.

Philips Consumer Electronics B.V.  
Coordination Office Optical & Magnetic Media Systems  
Glaslaan 1  
5616 LD EINDHOVEN  
The Netherlands  
Building SWA - 112  
Contact: Mr. Boudewijn van Dijk  
Phone + 31-40-273-3199  
Fax + 31-40-273-2113  
dijkb@am.umc.ce.philips.nl



## What Developers Need To Know About Labels

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### **Be patient.**

Not all music labels or artists or companies are releasing enhanced CDs. For many, it's a new format that's still being tested. The caution is understandable. For a record company or artist, enhanced CD is an investment. It's a creative enterprise much like making a music video, and it requires money, time, and talent to do it right. Larger record companies also get proposals on most everything and often cannot act so quickly on an idea or proposal. As a developer, you must be patient.

### **Do your homework.**

Some labels do more enhanced CDs. And many labels do very little. Don't pitch labels or companies who aren't likely to hire you. Watch MTV. Read *Rolling Stone*, *Spin*, *Details*, *Vibe*, and other music magazines. Read the trades *Billboard*, *Hits* and *R&R*. Read the interactive media trades *Inter@ctive Week* and *Interactivity*.

### **Have the right pitch.**

Labels will only do enhanced CD where it make sense. Newer bands have younger fans. They have computers. They spend time on the Web. The label knows these fans might buy enhanced CDs. Older artists might sell more CDs but will they sell more if it's enhanced? That's what the labels ask themselves, and you've got to ask the question, too. Especially before your pitch.

It's also a good to present the idea of having your enhanced CD be a Web-linked disc. Labels and artists are enthusiastic about the Web. Include it in your pitch and development plan.

### **Talk with other ECD developers.**

Join the Apple Media Program, user groups, trade organizations, newsgroups and list servers. Start with the Apple Enhanced CD List Server. Contact Catherine Christofferson at Apple Computer, Inc., at 408-974-6586, or send email to [catherine.c@apple.com](mailto:catherine.c@apple.com). There you'll find a constant dialogue on ECD among the people you want to know and do business with.

### **Attend music and technology conferences.**

Go to music and technology conferences such as Billboard, South By Southwest and Musicom. You'll meet people and get information you need to help your business grow. See "Conferences" in the Appendix to find the dates of conferences you want to attend.

### **Know your competition**

Watch the charts. Go to record stores. See what labels are putting out enhanced CDs. Chances are they'll do more. Go to the Enhanced CD Database at <http://www.musicfan.com>. It's got the largest catalogue of enhanced CDs and links to every ECD label and developer. Get to know your competition. Try to do what they do, but do it better.

“You need to have a valid project plan and good cost estimates, and know the technical obstacles and risks. You also need to present your pitch better than the last person.”

Perry Hunter  
nu.millennia, Inc.

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“Independent labels like Nettwerk are artist driven. We need to find different ways to market and promote our artists. We can't always afford four-color spreads in Rolling Stone. Enhanced CD is a great thing for us.”

Terry McBride, President  
Nettwerk Records and manager  
of Canadian singer  
Sarah McLachlan

### **Get to the right person.**

You've done your homework. Now you've got to know who to look for. The big six—Warners, BMG, MCA, Polygram, Sony, EMI—have new media staff.

The person has a title, such as Vice President or Director of New Media. This is the first point of contact and where you should submit proposals. But don't ignore the independents. They may not have a person with a new media title, but they still might be interested in what you have to offer. Independent labels are often quick to promote new musical trends, such as rap and alternative, and are able to move faster to take advantage of new marketing opportunities.

But how do you contact and present to a record label, or advertising agency, or marketing company?

### **Directories and Websites.**

Every industry has a directory. For the music industry, you might try the *1997 Yellow Pages of Rock* from Album Network (818-955-4000). Make sure it's the directory with names and contact information. You can also get a music label directory from *Music Connection* or *R&R*. It might even have artist information.

Most major labels have a Website. If they don't, you can be sure the site's on the way. Go to the Enhanced CD Database or to your favorite search engine to find the major label you want to research.

### **Marketing Directories.**

The directory for advertising agencies is the Red Book. For marketing companies, you might try *The Entertainment Marketing SourceBook*. But if you can't find the directory, try a phone call to the receptionist. They should be glad to help.

If you're referred by someone in the company or someone they do business with, it helps. Often labels will ask you to submit a demo or proposal by mail. Do not be offended. It's their chance to screen you before a meeting.

Record companies want their artists to look and sound their best. But some are unfamiliar with technology. They might need help understanding what you do, as well as what you cannot do. The next time they call it might be for an assignment.

## Section Three

What Developers  
Need to Know  
About Labels



### **The demo.**

Labels won't do enhanced CDs for every artist. Find out what special artist is coming up on the schedule. You might even try doing a "mock" demo, a small Director movie, or stylized graphic of the artist. That shows you're thinking of ways to present the artist. The "demo" gets your imagination out in the open and shows your talent in a tangible format. And, most labels expect it. It's the best and fastest way to prove your talent.

### **Getting the gig. You got it...now what?**

Don't go in with unrealistic, or inappropriate, budgets. Know you must deliver on what you promise. If you're too eager, you might commit too much to the project. You might also ask for too much money and not get the job.

### **Show and tell.**

Show what you want to do. Present a design document. List assets you plan to use (video, photographs, album art, lyrics). Say what software you intend to use, state the major delivery dates, and put figures down in a budget. This avoids "mission creep," the syndrome that leads to questions like, "Can we add ten more videos at no charge?"

### **The Interactive Music Handbook**

*The Interactive Music Handbook: The Definitive Guide To Enhanced CD Production, Business Development & Internet Music Strategies* published by The Carronade Group (<http://www.carronade.com>) is a must-have guide for ECD and Internet developers. The Handbook has a handy checklist you might want to use to start your first ECD project with a label.

### **Multimedia Sound & Music Studio**

*Multimedia Sound & Music Studio* answers the needs of multimedia designers and producers, musicians and audio engineers, and sales and marketing professionals seeking a better understanding of multimedia audio production.

### **Invite a lawyer to lunch.**

If you get the gig, then it's time to get the lawyer. You'll need to discuss media rights, content deliverables, product milestones, and payment structures. You'll also need to draw up contracts for your team. Be professional. Everyone needs to know what's expected from them, and when. Ask for recommendations from ECD developers. Look for a lawyer who knows entertainment, copyright, and contract law.

### **The Multimedia Law and Business Handbook**

You might want resources that won't cost as much. *The Multimedia Law and Business Handbook* by J. Diane Brinson and Mark F. Radcliffe is a handy legal guide for developers.

“ECDs should not cost six figures to produce, unless they're for a CD-ROM audience. You need to present the label with a financial model that's appropriate for their profit structure. Many of the products that we have produced have been budgeted at less than \$20,000.”

Mark Waldrep, Founder  
AIX Entertainment

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“*There’s no fool-proof formula or technique for planning your title. The only sure thing is that your computers will crash, data will need to be archived, QuickTime will need to be compressed, and people can’t work well twenty-four hours a day. So plan to have hardware and software maintenance checks. Establish regular backup and archiving schedules including documentation of procedures. Make sure the team is well rested. Disasters most often occur due to worker error.*”

Paul Royes, President  
Digital Waves

### **Give yourself more time than you need.**

Agree on a schedule and stick to it. Labels release records to coincide with tours, videos, publicity, and retail events. If you hold up a release, you’ll be held out to dry. Be realistic. Don’t over promise on delivery dates just to get the gig. Give yourself some room, you’ll probably need it. You don’t want to be behind when you just started.

### **Don’t test alone.**

Record labels aren’t used to records that don’t play. Make sure your product works. Don’t only test on your Macintosh’s and PC’s you have in-house. Always send your enhanced CDs to an outside test house for another opinion. See “Testing Facilities” in the Appendix.

### **Deliverables.**

The label will pay you for the work you do when it’s done. These payments are called “milestones.” The dates you deliver significant goods—the “prototype, alpha, beta,” and “**gold master**.” Set your milestones with the people who pay you. That’s the financial officer, business affairs person, or someone with check-signing authority.

### **Communication.**

The artist, label, and artist manger need to feel comfortable with you and the technology you use. Get questions out in the open. It’s better to get your answers early and often, rather than later. Keep communicating even after you get the job, too.

### **Assets.**

Get the best assets; artist photos, video, album art, and exclusive recordings are what music fans want. Get it in the format that also gives you the best quality. Get it early. Often that’s hard to do. Music labels run on a different clock. You’ve got to be ready to get the video at the last minute. You may deal with one person, or many. You’ll be in contact with more people at larger labels.

You’ve got to know what you can use. You might think assets are controlled by the label. But often the artist or a third party owns it. The label’s legal affairs department usually clears rights for material, but make sure. Always get your agreements in writing.

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### **Agendas.**

Be aware of the different agendas within the label. Possibly, marketing wants to use the enhanced CD to introduce an exclusive video. Creative services wants a new graphic look. New media wants to try out a new technology or Web link.

### **The artist.**

With luck, you'll be dealing with the artist, too. Many artists want to be involved with enhanced CDs. It's a new form of creative expression. Other artists may not be involved at all. Again, be prepared. Know what's important to the artist. It might be different from the label.

Bigger artists get bigger budgets. But tomorrow's superstars get big budgets today. You can find them in *Billboard* on the Heatseekers chart, in MTV's *Buzz Bin* or in the back pages of *Spin* and *Vibe*.

### **Web links.**

The Web is a big part of any label's marketing plan. Every major and many independent labels have Websites. If you can create a Web link and there's room in the budget, do it.

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## YOU'RE FINISHED... NOW WHAT?

“ You need to make sure everyone understands what you can and cannot do. There are technology limitations, budget constraints and limitations because of the label's release schedule. You've got to be up-front and honest about what you can do to gain and keep their trust. ”

David Benson, Developer  
Herman/Benson

You finish your enhanced CD, but don't leave the label hanging. Make sure the label tests your disc. There are many testing facilities such as Multimedia Services and XXCAL in Southern California. Wherever you are, find a testing facility that works for you and the label. By encouraging testing, you avoid problems later on and protect your reputation.

Next is tech support. Where do those calls go? Your job is to help the label choose the best tech support and identify problem areas with the disc. You'll have reports from testing and your own experience with the disc. Pass the information on to the tech support staff.

Be available to demo your enhanced CD. You know it better than anyone else. If the president of the label or a big retail account wants to see it, make sure they see it right.

### **Marketing your enhanced CD.**

What's next? Your job was to create the enhanced CD. It's the record companies job to market it. Yet you know what's special about the disc. You've done a good job and you want people to know it.

Get the word out. *Interactive Age*, *Billboard*, *Mac User*, *Internet World*. Magazines want their readers to know about the latest new thing. But stick to your knitting. If you've got something to say, say it, but don't speak for the label or artist.

Make sure the label knows what you're doing. What magazines you're contacting and when. The label may even arrange interviews for you. Work as a team, you'll get more done and you'll get more work.

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### Don Passman

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Don Passman is author of *All You Need To Know About The Music Business* (Simon & Schuster). Passman also practices law with the Los Angeles firm of Gang, Tyre, Ramer & Brown. His clients include Janet Jackson, Bryan Adams, Bonnie Raitt, and Tina Turner, among others.

#### **On music industry guides...**

There are many guides that have information on record companies—who works where, what they do. One I like is called the *Yellow Pages of Rock*. It's pretty expensive, but you might find it in your local library.

#### **On finding the right person to talk with...**

Almost all record labels have someone in charge of new technologies. They're the people who will be most receptive to your presentation. They'll also speak your language.

#### **On the right artist to pitch...**

You've got to figure what artists are being pushed by the label. Who will get this type of investment. The labels won't be spending money on enhanced CD if it doesn't make sense; for example, on rap and street music, where much of the sales are still for singles and cassettes. They don't have a large CD player penetration. On the other hand, music targeted at younger audiences has great potential.

#### **On target for enhanced CDs...**

It's for people who are not intimidated by computers, who are in their late 20s and have disposable income and are willing to try a new thing.

#### **On trade shows...**

Trade shows are good if you want to get a feel for the business.

#### **On reading the trades...**

Follow the trades. You'll spot the trends, marketing ideas, and issues the labels are talking about. *Hits*, *Billboard*, *R&R* are a few publications you should read.

#### **On a good demo...**

If you can get a referral, it'll help. It gives the label a reference point about you. A demo is even better. It's the same as a manager having a demo of an artist. But there's a big difference. Each week there are 400 tapes coming through an A&R department of a major label. We're not yet at that level with enhanced CD. The field is much more open.

Don Passman  
Author/Lawyer

## Brett Atwood

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Brett Atwood  
Music Video and Interactive Editor,  
Billboard Magazine

Atwood is syndicated to newspapers through *Billboard NewsWire* and is on the Internet through Billboard Online. Atwood covers video for Billboard in his spare time. So if you're a publicist or developer and get him on the phone, talk fast.

### **Innovation the key to press coverage.**

The fact a music release is an ECD is no longer newsworthy. It's the innovative use of interactive media that gets ink in the trade press. I wrote on an ECD release from Loud Records/BMG. On the release for Mobb Deep they imbedded a "secret song" in the ECD. Consumers that found it got a reward. I found that newsworthy because it did something new.

### **Do's and don'ts of pitching ECDs to press.**

The worst pitches are dishonest or ill-informed. I've had publicists emphasize an ECD release as the first of its kind, which is often not the case. I understand publicists are doing their job, but don't expect a large news story just because it's an enhanced CD. A good publicist will save their strongest push for the innovative products.

### **What labels do or don't do to publicize ECDs.**

Some labels are more aggressive than others. But I find in many cases no one is publicizing ECDs! They just show up on my desk along with audio CDs, music videos, and CD-ROM releases. I get the sense ECDs are not being actively promoted by many music labels. So if you're a developer and can help, you should.

### **Consumer press untapped.**

The "sexiness" of ECDs is over for the trade press. It's the same with the Web. But I think mainstream consumer press is still untapped. That's because most consumers don't know what ECD is yet. So I think consumer publications are a great way to educate consumers.

### **The challenge is great content for little money.**

I think most companies are shocked to discover ECD has not been an overnight success. It will take time but I think there is still consumer interest. Yet consumers clearly aren't likely to pay more for the interactive media. So, the challenge is to make great content for as little as possible.

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### **Make sure you have something newsworthy.**

No matter what company is behind a project, there must be a newsworthy element to the product. Otherwise, it's not going to get coverage beyond a review. Also most readers are more interested in a major music company like Sony or Warner Bros. Smaller companies only get covered when they have something to report.

As a developer, you know where music fans are on the Web. You know the relevant newsgroups, music listings, and directories. The label may need, and want, your help. Gauge their sophistication. Let them know you're available, if needed.

List your ECD at the Apple Enhanced CD Database <http://www.musicfan.com> It's a great way to get people to know about your disc. You might also want to make a mini-demo of your enhanced CD. Submit your interactive media demo by emailing [ecdsources@apple.com](mailto:ecdsources@apple.com). Make sure you also ask about promotional opportunities.

# Gabriel Levy

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Gabriel Levy  
Manager,  
Interactive Music Development  
BMG Entertainment

Gabriel, a rising industry star, does interactive music development for BMG Entertainment which makes him very busy and very popular. He was last seen executive producing Mobb Deep's platinum-approaching *Hell On Earth* enhanced CD.

## **Why Did You Include a Web link on the Mobb Deep *Hell On Earth* ECD?**

We put a Web link on the Mobb Deep ECD so fans got content on the back end that we get to update. Fans can use the Web link to go to the Mobb Deep home page <http://www.loud.com/mobb/mobb.html> or get content from the disc itself. By unlocking a password, they also get a bonus audio track that's only on the enhanced CD. The Web link is also free for 30 days, so we're delivering a lot of value for the Mobb Deep customer.

## **Are Web links Planned For Other BMG releases?**

We work with our labels and artists to do different things. This could be a Web link, an interactive media presentation, exclusive songs or videos, games or whatever makes sense. We take one release at a time but make sure our labels stay ahead of the curve.

## **What Do You Need to Consider When You Do a Web Link?**

Web links work because music fans want up-to-date information on their favorite artists. We want people to come back to our Websites because they feel they're part of a community.

## **What Are the Design and Marketing Considerations When Including a Web Link on a Release?**

Our Web link-enabled CDs are very user-friendly. You simply click a button to connect to the Web and you're online. The Web gives us a faster link to our customer. We can tell them the latest news on their favor artists and they can buy product as well. Our artists are also on the Web by genre. That means consumers can find out about artists from our other labels they might not know.



## New Creative Expression

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It's hard to imagine the audio CD as anything but an overnight success. Yet the audio CD took awhile to catch on. Enhanced CDs need their own time to win the public over. Despite format hurdles, enhanced CD is beginning to strike a chord with music fans and artists. And that's good news for ECD.

### Artists crucial to success of ECD.

Two of the best-selling music groups, Bush and No Doubt, released enhanced CDs last year. Many younger artists are video game players or fans of the Web. These artists feel enhanced CDs and the Web are natural ways to connect to their fans. That's why we can expect more enhanced CDs and Web links from artists this year.

Artists, record labels, and managers feel differently about enhanced CDs and the Web. But they're all talking about it. Here's what they're saying.

Jonathan Block, artist manager of Fun Lovin' Criminals (EMI), G. Love & Special Sauce (Epic) and others takes his Apple PowerBook Duo 280 on the road. When he's not logging in, he counts the latest box office receipts and royalty statements for his stable of mischievous funketeers.

"The industry hasn't gotten behind ECDs as much in the past year because of the compatibility issues and problems at retail," says Block. "But the Blue Book standard seems to be getting across-the-board support now. We're interested in anything that gets a better link from our artist to our fan base. The Internet and ECDs are another way to do that."

Artists are more aware of the creative and marketing power of ECDs and the Internet. Artists see how other artists and labels experiment with new media. Many are now comfortable enough to try it themselves.

"I've seen what our friends are doing with enhanced CDs and Websites. It's pretty cool and we're into checking it out," says Steve, drummer and resident Internet expert of the Fun Lovin' Criminals. "But we want to stand out from the pack and keep it real and innovative. I think we're getting closer to real-time video on the Internet. We want our fans to see us how we really are which is pretty scary."

Music video directors are excited about the new non-linear video capability of ECD. "This is a totally new creative arena," says Peter Christopherson, award-winning director of music videos from rock groups such as Van Halen and Nine Inch Nails. "Enhanced CD allows us to think about video in a new, non-linear format. This hasn't been possible because of the specific needs of traditional video and TV."

Managers see new ways to promote their music artists through ECDs. "The technology is improving," says Jerry Jaffe, manager of British alternative mainstay The Jesus and Mary Chain. "What we're looking at now is going to seem like a Model T Ford three years from now."

“Enhanced CDs are another creative avenue for artists to explore. We can do things with it that fans can't find anywhere else. Home-made videos of the band on the road, special lyrics, different pictures of the band. It's really up to our imagination.”

Steve Stewart, Manager  
Stone Temple Pilots

“We've never been afraid to utilize technology. We've enjoyed its benefits and we have a healthy respect for technology's evolving nature. We want to use it to enhance the listening experience. Our approach is to entertain.”

Steve Thomas  
New Order

# A Day in the Life of the Den

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Jennifer Frommer  
Den Mother and Director of  
New Media,  
Sony Music

Sony Music is a hotbed of ECD activity. Here's a day in the life of the Den from Jennifer Frommer, Director of New Media, Sony Music.

## **Monday, December 11, 1996**

### **10:00–10:30 AM: The Entrance and Introduction**

The Den members enter one by one with coffee cups and breakfast. They come up a small ramp that opens to the Den (aka “New Media Lab”). The Den towers over Madison Avenue in a remote corner of the Sony building.

### **The Origin of The Den**

As they start their day, the heads of Den members peer over colossal machines and 20-inch monitors. Den mother Jennifer Frommer sits in the front office commanding the Den troops. The Den was originally called “Jen’s Den of Men.” This was changed to “The Den” in an effort to be politically correct.

### **The Den Members**

Jennifer Frommer—Director of New Media  
Nelson Wong—Lead Digital Artist  
Paul Giordano—Project Coordinator  
Ian Frommer—Programmer  
Antonio Cruz—Programmer  
Jennifer Dunn—Digital Artist  
Galo Morales—Digital Artist  
Robert Sagerman—Digital Artist

### **Harry Connick Jr. and The Wall of Fame**

The Den creates new media projects for Sony Music’s artists. This includes CD EXTRAs, Websites, screenkillers, research and development. Many Sony artists work with the Den to translate their musical vision onto the computer screen. When done, they sign The Wall of Fame. The wall was christened by Harry Connick Jr. with the inscription ‘Awesome Super Talents.’

### **The Board**

In the main Den area, a production board rests high on the wall casting a long shadow on the Den members. The board lists all the Sony CD EXTRA projects and master/due dates. The Den marries the final two sessions of a CD EXTRA. Translation: the Den is responsible for creating the final disc of many of Sony’s music artist’s latest musical offerings. Translation: it can’t be late.

### **11:00 AM: The Board Speaks**

No, not the Board of Directors, but the “mark & wipe” board that lists the due dates of upcoming projects. Tomorrow is December 12. “What’s due?” Jamiroquai 12/12, Protein 12/12, Chris Whitley 12/12, Silverchair 12/12, Mundy 12/12.



Amazingly, the Den has seen this storm and tidal wave of due dates before. They put the finishing touches on a last-minute graphic, a last-minute rendering, a last-minute sound effect, a little Lingo, a pinch of basil and a low flame. Places are traded, to test out the test burns on various **platforms** and computers.

“Ping!”

“Tony, your toast is done.”

“Toast, that’s not toast, it’s Silverchair’s new album *Freak Show*.”

### **1:00 PM: The Family Tree**

In addition to artist managers, there are label product managers. In addition to product managers there are A&R reps, who work closely with their promotion manager. They all have meetings with the packaging art director. The packaging art director meets with the packaging managers who have lunch with the marketing coordinators. These are the roots of the Sony Family Tree.

To keep on deadline, only a small and manageable creative group gets involved in the development of a CD EXTRA. This group includes the Den and band involvement, with conceptual input from the product managers.

“Uh, Ian, can you make these photos flash randomly?”

### **3:00 PM: The Band**

The building falls silent when the band arrives, as everyone watches their every move. They quickly escape the Family Tree and find their way to the Den. They arrive with their ideas, photos, home videos and unreleased music. After signing the wall, the band, ‘Shudder To Think,’ gives suggestions to the Den for their CD EXTRA and film themselves for an electronic press kit. The phone rings. . . “Jennifer, uh, ‘Talking to Animals’ is in the lobby.”

### **4:00 PM: The Bands Meet**

The Den gets crowded as the two bands trade places to look at their CD EXTRAS. The phone rings. . . “Is Shudder up there?” “Is ‘Talking to Animals’ there?” The Family Tree finds the bands and the Den is invaded.

### **6:00 PM: Meet the Master**

Darkness falls upon the office and silence is restored. The room is lit by the glow of the wacky Music Screeners the Den created (<http://www.sony.com/Music/Screeners>). The Den has been left to finish its work. The CD EXTRAS have been approved by everyone. Now it’s time to test for final bugs and create the gold master for tomorrow’s shipment.

### **7:00 PM: New Arrivals**

The Den begins the graphics on some new arrivals and works on a new technology, called ConnecteD.

### **8:00 PM: Shut Down**

“Who’s going out for drinks?”

## Don Was & Douglas Gayeton

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Don Was  
Producer

Don Was, a Grammy Award-winning producer, has produced records for The Rolling Stones (*Voodoo Lounge*), Bob Dylan, Bonnie Raitt, and many well-known artists. He is developing film and music projects with Chicago-based Lakeshore Entertainment and directed his first film last year, a documentary on Beach Boy legend Brian Wilson, *Brian Wilson: I Just Wasn't Made For These Times* for Palomar Pictures.

Douglas Gayeton  
Director

Douglas Gayeton, a former music video director, co-wrote and directed the Sony Imagesoft interactive CD-ROM title *Johnny Mnemonic*. More recently, Gayeton directed segments for MTV and U2's new television series, *Zoo TV* and launched *Plug In* for AOL's Teen Channel.

### **Why did you decide to get involved with interactive media and films?**

Don Was: "I got interested in interactive media and film because it expands the marketing possibilities for music I'm involved in. A lot of great artists are restricted creatively by the way their art is marketed. For musicians, you get on the radio or get in a van. If you can't do that, you're not heard."

### **Don, you and your band were involved in music videos from the beginning, back in the early '80s. Did you approach them the same way you're approaching your work now—from a lot of different angles?**

Don Was: "We had a hit in the '80s with *Walk Like A Dinosaur* because we had a lot of cute girls in our video, but, to be honest, it wasn't thought out. There was some genuine creativity at the outset of music videos. Peter Gabriel is an example of that. He got personally involved and used videos to extend his artistic vision. But most musical artists don't think in visual terms, even after 20 years of MTV. It's important for musicians to extend their artistic vocabulary and I think interactive media is a second chance for many artists."

### **Doug, as a director who used to make music videos, how has it been moving into interactive media?**

Douglas Gayeton: "The way I see it, no one seems to be asking the right questions. Why hasn't there been a really successful, breakthrough interactive music title? I'm not sure if anyone has figured out the paradigm of placement, where and how is the best place to get an interactive music experience. Do you want a story on your computer, or on your TV? Do you want to listen to music on your stereo, in your car or on your computer? How do you want to experience something, and in what environment? Does technology make it better? In many cases, less is more. Just because the technology is there doesn't mean you have to kludge it onto every entertainment experience."



### **What about some of the other artists you've worked with, Don? What are their reactions to the possibilities for interactive music?**

Don Was: "I had an interesting experience with the Rolling Stones. I brought a prototype of *Xplora* to Ronnie Wood's farm when we started *Voodoo Lounge*. Mick was interested. He's in the film business. He watched the title and tried to figure out how the Stones would be able to go into that world in the right way. Keith walked in while a tech was explaining some screen and said "This is a load of bollocks" and threw his Guinness at the computer. The analogy is the Moog synthesizer. In 1972, or whenever it first caught on, it wasn't the hip artists like William Orbit who were into it. It was for broken-down jazz players at the Holiday Inn who wanted to beef up the act. They would play the Moog exactly the way they played the piano but add some bogus cello. That happened for five or six years until a new generation of kids came in and at 12 years old this was the instrument they played. They didn't start with the piano or a Hammond B3. They didn't want the cello sound. They wanted a new sound. They had what the Buddhists called 'beginners mind.'

Douglas Gayeton: "There's a misconception that every new market is driven by technology. They forget the importance of content. The ability to create new types of content for an emerging technology comes from understanding what is universal and at the root of an experience. That type of street-level, subversive understanding doesn't happen in a corporate board room with talk about synergy and technology agreements. It happens with individuals finding inventive new uses for the technology that's there. It's why the Net won out over interactive television. Enhanced CD will, for example, have music content on the disc, plus the ability to launch directly into an online experience where you can have a live dialog with other devoted listeners or visit a Website dedicated to the band and maybe buy additional goods. Who knows? Enhanced CD could be a gateway to something that overwhelms MTV and the concept of what we traditionally think of as a record store."

### **What's an album going to be like ten years from now?**

Don Was: "Music will always be about the song, the individual who felt something and wants to express it to someone else. Good art will always be decoded in essentially the same way. No matter what technology enables us to do in terms of presenting and delivering art, it's still going to be about the song, the story, and a really great communicator."

Douglas Gayeton: "Music is about a mood, a feeling. The same can be said for images. You'll see more of a synchronous relationship between the two, one that's orchestrated to hit all your senses and totally envelop you. In the future, music product will be a completely immersive experience sold across every conceivable delivery platform."

“*That type of street-level, subversive understanding doesn't happen in a corporate board room with talk about synergy and technology agreements. It happens with individuals finding inventive new uses for the technology that's there.*”

Douglas Gayeton, Director

## Tom Dumont

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“ We consider our enhanced CD to be a product for the die-hard fan who really wants to know more about the band, our history, and our personalities. ”

Tom Dumont  
Guitarist,  
No Doubt

No Doubt is the ska-punk band from Orange County that rocketed to the top of the Billboard charts with the not-so *Tragic Kingdom* LP from Trauma/Interscope. Tom Dumont, guitarist, handles screaming teenagers and Gwen Stefani's on-stage pogoing with typical low-key aplomb. Dumont, the group's professed 'tech head,' dropped in from their recent sold-out tour.

### **What's your next enhanced CD going to be like?**

Our first enhanced CD release only featured one video for *Just a Girl*. We're now working on a new enhanced CD that will be full-length, including music videos for three or four more songs, two or three previously unreleased audio recordings, games, tons of band snapshots and home video clips, and interactive music games where you can jam or sing along with our audio tracks.

### **Why do you do enhanced CDs?**

For No Doubt, we consider our enhanced CD to be a product for the die-hard fan who really wants to know more about the band, our history, and our personalities. I think since one cannot play an enhanced CD in a car stereo or Walkman, the market will be somewhat limited.

### **Do you spend time on the Web?**

I do spend time on the World Wide Web, and we plan to link our next enhanced CD to our Official No Doubt Website so that users can download new files and features to work with the CD.

### **Who else in the group is into new media?**

In my band, I'm the one who is into the Internet and computer technology. Personality-wise, some people just aren't into spending time on the computer. I know the others in my band want to make computer stuff available to our fans, but we're musicians first and foremost, so we've connected ourselves to people who can spend their time making these things happen for us.

### **How can enhanced CDs be more of a success?**

Some ways to make the enhanced CD more successful would be to market them on the Internet via band Web pages and bulletin boards. It would also help a lot of if enhanced CDs were cheaper than regular full-length CDs.



## What Labels Need To Know About Developers

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You want to know about enhanced CDs. How to hire developers. What to look for. You're at a record label, advertising agency, or you're an artist. Your job is not to make enhanced CDs. Your job is to hire the right people to do it.

If you're unfamiliar with technology, learn it. Read *Wired*, *Interactive Age*, *Internet World*. Go to trade shows: E3, Internet World, Comdex, CES. Be a member of the IICS.

### **Do your homework.**

Meet with people who know more than you. Ask them the do's and don'ts of enhanced CDs. Join AOL, CompuServe or Prodigy and get on the Web. Meet with developers. Ask them what they do, what tools they use. Know their time is valuable. If there's an opportunity for work, they'll help you, but don't abuse the privilege.

Find enhanced CDs you like. Read the **liner notes** and get the developer's name. Or call the label and ask for a reference. You'll be surprised at the help you get.

### **The Enhanced CD Survival Guide**

It's a jungle out there. You'll need a survival guide to find your way. Jim Baker has written the *Enhanced CD Survival Guide* for Apple Media Program members. It's an expert's look at the definitions and creation of enhanced CDs.

<http://www.amp.apple.com/resources/survivalguides.html>

## WHAT TO ASK DEVELOPERS

Ask the developer for an estimate. They'll be glad to provide one. But tell them what they need to know. What assets they'll use. When you need it. What the marketing objective is. The estimate should break out different parts of the job. If the job changes you'll know where the budget will change.

Deadlines are named for a reason. You don't miss them. Developers shouldn't either. Make sure production milestones are clearly understood. It helps to tie milestones to money. Make it a part of the contract. Your developer will work harder and faster.

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## THE DEVELOPER DEFINITIONS GUIDE

You're in a meeting with a developer. Half of what's said doesn't make sense. You need *The Developer Definitions Guide*, your on-the-spot new media reference guide.

### Audio and Video Digitizing Software

Applications that are commonly used to convert audio and/or video for use on a computer (e.g., ProTools–audio; VideoShop–video).

### Authoring Tool

Software used to program interactive presentations (e.g., Apple Media Tool).

### Burner

Device used to make a “one-off” gold CD-R (e.g., “burning a disc”). Used with disc-burning software (Toast).

### Codec

Software that allows the compression and decompression of audio and/or video. Usually included with the extension for playback (e.g., Cinepak is part of QuickTime).

### Extensions, DLL, etc.

Various names for add-on software that extends the functionality of the system software (e.g., QuickTime).

### Gold Master

A CD “one-off” made using CD-R blank discs. Master means the CD is used for replication.

### Platform

Computer that uses a specific operating system (e.g., Macintosh platform represents all computers running MacOS).

### Run-Time, executable, projector

Various names for self-contained software created by authoring tool for distribution.

### Xtras, XObjects, XCMDs, etc.

Various names for add-on software that extends the functionality of the authoring tool and/or executable. Used for Audio CD control, QuickTime VR, and other new technologies.

Video needs to be compressed to save space and improve performance. Video software usually allows for compression, but there are now stand-alone programs that improve on the quality of the compression (e.g., Movie Cleaner Pro).



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### TOP TEN DEVELOPMENT ECD TIPS

Here are ten pieces of advice for your next ECD project. Follow these tips, you'll have less headaches and a better ECD title.

1. Gather or catalog your content before you screen developers. That way you'll get an accurate estimate of the scope, time and cost for the job.
2. Put all key issues and activities for a project on paper before you begin. Make sure everyone gets a copy and reads it. Include: Concept, Budget, Production Schedule, Key Features, Content Used, Delivery Platform, Production Tools, Roles, Testing.
3. Know what you want. The type of project determines which developer skill sets are important. Make sure your classical ECD title doesn't end up with the team who did *Virtua Fighter*.
4. Look at other titles to find out what's been done, what works, and most especially what doesn't work.
5. Get the marketing department behind the project. Understand the points that will help them sell the ECD and include those in the design.
6. Picking a developer for a project is like choosing a producer for an album. Personality, chemistry, and work ethics are as important as a good demo. You'll be working with the team closely so you better enjoy it. Make sure you get the right leads to the right developer for the job.
7. Set milestones and schedules that work for your release schedule and the developers. Tie those milestones to payments. Include the payment schedule in a design document that you and your developers sign at the start of the project.
8. Be part of the production process. Stay in touch with your developers. Speak often. Visit often. Email often. Be encouraging. If you see the project swerve off course, let them know it.
9. Insist and plan on independent testing. It may take two or three testing cycles to get out the bugs. So make sure you have room in your original schedule and budget.
10. You don't want consumers calling you for help on setting up Windows 95 or their latest sound card. Hire a tech support company that knows the most common interactive media problems. Arrange tech support before your project goes into testing. This information needs to be printed on the CD package.

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## THE DEVELOPMENT TEAM AND THEIR TOOLS

You need teamwork to develop enhanced CDs. With small productions, people wear different hats. Job titles may also change but the roles are usually the same.

“*The producer puts the team together and keeps the entire job in their head. They must understand every part of the development process and know every problem at any given time. They must also be able to talk with every member of the team. That means they've got to know all the different perspectives from the tester to the programmer to the graphic artist. The creative director says 'We need two videos, a screensaver and a music player component with interactive graphics.' Then delegates the creation of the game component to a game designer. They work very closely with the art director and programmers. This is the person who makes sure the title has a consistent appearance. They also decide what the user interface should contain and what the product should do.*”

Mike Koenigs  
Digital Cafe

### Executive Producer

The executive producer arranges the financing of the project and acts as liaison between client and development team.

### Producer

The producer picks the team for each project and oversees budgets, schedules, and staffing. Helps in the acquisition process and oversees attorneys for rights and clearances of content.

### Project Manager

The project manager is responsible for all members of the team, and reports the progress to the producer or client. Also responsible for acquisition and asset management and tracking files from all team members.

### Creative Director

The creative director is responsible for design and creative of the title. This person balances creative goals with technical feasibility. On smaller projects, the creative director will assume the duties of the project manager.

*Tools:* Adobe Photoshop (image editing), Adobe Illustrator or Macromedia Freehand (illustration), MoviePlayer (QuickTime video), SoundEdit 16 (audio)

### Art Director

The art director creates the look and feel of the title. Manages color schemes, illustration and modeling styles, type-face choices, etc.

*Tools:* Adobe Photoshop, Adobe Illustrator, StrataStudioPro or Infini-D (3D), QuarkXPress or Pagemaker, Macromedia Fontographer (type design), Equilibrium DeBabelizer (overall graphics and color palette utility)

### Graphic/Interface designer

The graphic/interface Designer works with 2D and 3D artists to create all graphic elements, including interfaces, backgrounds, and buttons, with special emphasis on interaction between title and user.

*Tools:* Adobe Photoshop, Adobe Illustrator, StrataStudioPro or Infini-D (3D), QuarkXPress or Pagemaker, Apple Media Tool or Macromedia Director (interface scripting)

### 2D or 3D Artist

Graphic artist specializing in 2D or 3D art and illustration.

*Tools:* 2D Adobe Photoshop, Adobe Illustrator, QuarkXPress or Pagemaker, Macromedia Fontographer (type design), Equilibrium DeBabelizer (overall graphics and color palette utility) 3D Form\*Z, Electric Image Animation Systems, StrataStudioPro, Specular Infini-D, Macromedia MacroModel

## Section Five

What Labels Need  
To Know About  
Developers



### Audio Specialist

The audio specialist digitizes, normalizes, equalizes, dithers, compresses and otherwise treats all audio ranging from effects, to ambient audio, to narration, to feature assets.

*Tools:* QuickTime 2.0 , Opcode OMS, Macromedia SoundEdit 16, OSC Deck II for 'AV' machines, Opcode StudioVision, Digidesign ProTools, Digidesign AudioMedia II card, Sound Designer II, OMI Disc-to-Disc

### Video Specialist

Digitizes, edits, and compresses all digital video for optimized CD-ROM playback. Can also be responsible for shooting or arranging video shoots.

*Tools:* Adobe Premiere or Avid Videoshop, Adobe CoSA After Effects, Movie Shop, QuickTime 2.0, Movie Player

### Animator

Uses 2D and 3D assets and animates them into PICS, QuickTime or other formats.

*Tools:* Macromedia Director, Electric Image Animation System, Autodesk 3D Studio

### Programmer

Writes code for title's interactivity, memory management, operating system concerns, etc. May author segments using consumer authoring tools or write new code in C++ or similar language. Usually responsible for cross-platform development either solely or with partner program for each platform.

*Tools:* Apple Media Tool, Macromedia Director, Symantec C++, Metrowerks Code Warrior, HyperCard (programming tools)

### ECD Manager/Tester

Can also be programmer. Typically manages CD-ROM optimization including file placement, one-off burning of test CDs, etc. Also responsible for in-house testing and coordinating off-premises testing.

*Tools:* Philips CDD522 Burner and Astarte Toast 2.5.1 or JVC Personal ROM Maker (CD-ROM burning) , 68030 Mac, 68040 Mac, PowerMac, 486DX2/25, /33, /66, Pentium PCs

“ *It's so important to have an art director that can use the right tools and also understands the interactive media component. The look of the title is the first thing people notice. That look also has to reflect the artist and a good art director can do that.* ”

David Benson, Developer  
Herman/Benson

“ *This is a tough job and they're only a few who do it well. [Video Specialists] have to work with software and hardware that's unpredictable and unreliable. They need to capture, compress, test, examine video over and over. Tweak the inputs, check black and white levels, mess around with contrast and brightness. Deal with 3/4", beta tapes and deal with extremely tight deadlines. Often, the video guys don't get their assets until two weeks before the project is due. That's why it's so important they know the traditional video world and digitization.* ”

Mike Koenigs  
Digital Cafe

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“ We have two kinds of programmers... Director developers and C programmers. The C programmers handle the XObject production, installers and things Director can't handle. Our Director developers handle the Lingo and scripting work. We hire testers on a contract basis, or outsource the actual testing work. We have a strong relationship with PC Test and they handle our functional as well as compatibility testing under our direction. ”

Perry Hunter  
nu.millennia, Inc.

## The Blueprint

You need a blueprint to build a house. Ask your developer for a design specification. It's the piece of paper everyone needs to read. Concept, budget, key features, production tools, testing. Everything should be in the design spec.

Your artist has different skills. Developers do too. Your job is to make sure the skills match. A developer might be right for one artist not for another.

## Testing 1-2-3

Leave room in the schedule for testing. Enhanced CDs are software and software needs to be tested. It's the developer's job to test the disc. But outside testing should be done too. It's especially important during beta and alpha stages of the development.

## Alpha

The first formal test. You make sure your system does not crash, screens do not freeze, that everything performs as expected. Make sure the interface is intuitive, consistent and effective to actual human testers.

## Beta

First its user testing, which means testing the interface and design to see that it works and people like it. Second its compatibility testing, to see if the title will work on the platforms you said it would. Finally its bug testing to check for any crashes or last-minute fix-its.

The bigger the title, the more testers you should have and always use more than you think you need. You also can never know all the multiple configurations of monitors, drivers, etc. So that's why using an outside testing lab is so important. They use 12 to 36 machines with operating systems from many different manufacturers. Remember, each dollar you spend in testing will save ten in tech support calls.

## Section Five

What Labels Need  
To Know About  
Developers



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There are companies that will test your enhanced CDs. Here are several companies you can contact.

PC Test Corp.  
8625 S.W. Cascade Suite 441  
Beaverton, Oregon 97008  
Phone: (503) 646-2852  
Fax: (503) 646-2852  
<http://www.pctest.com>

XXCAL Corp.  
11500 W. Olympic Blvd. Suite 325  
Los Angeles, CA 90064  
Phone: (310) 477-2902  
Fax: (310) 477-7127  
<http://www.xxcal.com>

Multimedia Services  
1657 Euclid Ave.  
Santa Monica, CA 90404  
Phone: (310) 581-5800  
Fax: (310) 581-5899

The Center for Software Development  
111 W. St. John, Suite 200  
San Jose, CA 95113  
Phone (408) 494-8302  
email: [sandy@center.org](mailto:sandy@center.org).

Also go to Yahoo:

[http://www.yahoo.com/Business\\_and\\_Economy/Companies/Computers/  
Software/Programming\\_Tools/Testing/](http://www.yahoo.com/Business_and_Economy/Companies/Computers/Software/Programming_Tools/Testing/)

Your testing house knows your enhanced CD better than most. If they offer tech support, you might want to keep the disc where people know it best. Or you might want to shop around.

## Liz Heller

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“*Developers have to understand what appeals to a music artist.*”

Liz Heller  
Senior Vice President New Media,  
Capitol Records

When not busy debating the origin of html with artists Everclear and the Foo Fighters, Liz Heller runs new media for alterna-topper Capitol Records. Heller, known for awe-inspiring energy levels, produces films in her spare time such as the cult classic *The Basketball Diaries* (Island Pictures) with Leonardo DiCapricio.

### **On understanding the artist...**

Developers have to understand what appeals to a music artist. Sometimes you see titles or demos that are really well executed. But you know when it goes to the artist, it won't translate. It's the same thing with music videos. If you're a music video director and you're pitching Nine Inch Nails, you're not going to show them the Mariah Carey video you did. It doesn't matter how well it's shot.

### **On mixing and matching...**

If I know someone who can write a great program or has this great engine, I can bring in a designer who might have a better understanding of the artist. They might have done the album package, know the artist or know creatively what the artist is all about. This is extremely important because a music artist is not an inanimate object, a storyboard or game title. It's a living person who makes his or her living as a musician. They're not going to hand that over to someone who doesn't "get them" creatively.

### **On remembering developer skills...**

I've had experiences where developers show these incredible 3D models of futuristic houses that would make any game company swoon. But the artist says "I don't have any houses like that. How does that apply to me?" You feel for the developer. They're sitting on the other side of the room going, "But I made it in 3D Model Pro." I look at the particular skill sets of a developer and, although they may not be right for a particular project right now, I remember what they did. We'll bring them in when the time is right.

### **On being patient with labels...**

There's no efficient system that's been developed to get assets and music to developers. Record labels have made records for years. Enhanced CD and Web development are brand new. Developers have to understand this is an imperfect system. We're doing different things to promote our artists than waiting for their call. There has to be patience and understanding on both sides.



## Don Coleman

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Macey Lippman Marketing has one of the largest databases of record and software retailers, which makes the marketing firm very popular. Road tested and battle scarred, VP Coleman has retail's pulse so we thought we'd check in.

### **Are record labels spending marketing dollars against ECD or is their approach more organic (a la Sony)?**

There is a core of people at many labels who are believers in ECD. However, in the last few years, the record business has become much more like the movie business. If you don't hit in the first few weeks, you're toast. This attitude, and the fact that ECD had technical issues in the early days, means labels are cautious before they spend money marketing ECDs.

“ ECDs are here now and they're a natural added value that promotes the artist. It's a win-win that will catch on. ”

### **From your surveys, are consumers and retail interested in ECD?**

Yes, and it's grown over the last couple of years. Yet there are some retailers and record labels who still say "who cares?" This is, at a time, when one of the buzz words is "value added" which is hard to understand. ECDs are here now and they're a natural added value that promotes the artist. It's a win-win that will catch on.

Don Coleman  
VP Marketing/ Research,  
MLM/ LIP SERVICE

### **Are there any parallels to the past as far as the gradual acceptance of the format? Is there light at the end of the tunnel for ECD?**

There is an interesting paradigm that has developed in the computer industry. Windows NT languished for years, but Microsoft never stopped pushing. Now, everywhere you look, you see how Windows NT "has arrived." This would have never happened if Windows NT was a record or a movie. [Regarding light at the end of the tunnel. . .] Yes, but at this point, I don't think anyone could honestly tell you if it's daylight, or a freight train.

### **What do you think is the best on-package approach for ECDs in terms of branding?**

I think the ECD logo that was adopted earlier this year is great. It should be plastered all over the place! We need to establish that brand just like Intel or Kleenex.

### **Are online music sales sites an opportunity for ECD and how does hybrid Web-linked ECDs and the Web as a marketing tool factor in?**

We've had lots of success using online to market ECDs. It's the most effective way to reach your target audience. When we promote on CDnow or Music Blvd., we know we're reaching consumers who have access to a computer and are interested in music or they wouldn't be at the site. You can't get any more targeted than that.

Hybrid Web-linked ECDs could save the format, especially as the computer becomes part of the home entertainment center. I believe more emphasis should be put on this area, especially given the ubiquity of the Internet.

## Mike Koenigs

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Mike Koenigs  
President,  
Digital Cafe

As founder of Digital Cafe, a tech support and development house in Minneapolis, Mike Koenigs knows what works and what doesn't. Koenigs has a staff of 16 which means he doesn't 'do' phones.

### Most Common Technical Support Questions

#### **Windows**

We find 75 percent of our calls are related to compatibility with CD-ROM drivers or CD-ROM hardware with Windows 3.x. and Windows 95 fixes. We receive question for almost all problems with the exception of driver or hardware issues.

#### **Video and Sound Drivers**

We also deal with problems with video or sound drivers. Most problems are because the customer is not running the latest version of sound or video drivers which they can find at the hardware vendor's Website. We often see people who might be running "Standard" Microsoft video drivers in 256 color mode instead of running the appropriate driver for their card in Windows 3.x. Changing this in "Setup" or downloading the latest drivers solves most of these problems. We'll occasionally find non-Sound Blaster audio cards that cause problems with QuickTime as well.

Other problems deal with screen savers that start running during video play and the program doesn't recover successfully.

#### **Macintosh**

The few Mac support calls almost always deal with machines with too little RAM which can be alleviated by reducing the number of INITs. Turning off file sharing, "calculate folder sizes" in the "Views" control panel, old versions of QuickTime and other performance issues affect this.



## Jim Martone

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Two music groups, Bush and No Doubt, first heard of 'end caps' from wily industry vet Martone. It's no wonder the two groups are on top of the music charts with two of the most popular ECDs yet. A true tech head, Martone's the only person who gets to talk to the Shaquille O'Neill and Highway One's Leo Rossi in the same day.

### **How do you educate people about the benefit of ECDs?**

Education must occur at the retail and consumer level. First retail has to be enlightened. This has been done through demos, panels at NARM and other conventions, our marketing materials, and with independent marketing companies calling on individual stores. But there's still a lot more work to do.

### **How do we get the consumer interested in ECDs?**

We need exciting product to get the interest of the consumer. We also need to create enhanced value for the consumer. We did a promotion with Best Buy where we treated the enhanced CD and music CD-ROM as a value-added premium tied to the purchase of an album. It got a great response. The consumer is happy because they got a great product for a great value.

### **Are retailers interested in ECD?**

I get a sense for the first time that ECD is getting interest from retailers. The record business is getting hammered by others forms of entertainment. So "enhancement" of any music purchase can only be a good thing for retailers.

### **What are the stumbling blocks for ECDs?**

The compatibility issue for ECD has been a serious stumbling block. The standardization of multisession needs to get in place and compatible hardware and drivers needs to be the rule instead of a crap-shoot. The production value and creativity has also got to be very high for consumers to accept ECDs. That's happened but not as often as it should.

### **Does enhanced CD offer value for music fans and retailers?**

"Enhancement" is a tricky issue. For an unestablished act, the music is still going to drive the purchase. The enhancement is a marketing and imaging tool along the lines of great packaging. But the "enhancement" can add real value to certain releases by taking the extra step to connect the user to a positive music experience. From this point of view, I believe it represents added revenue streams to retailers. I know this is the case because of the success we had with the Bush and No Doubt ECD.

### **What is the future for enhanced CD?**

I'm convinced there is a consumer base that likes and wants ECDs. We need to grow the market by getting rid of the compatibility issue. Then we need to deliver compelling interactive media by music artists the consumer cares about, and for a reasonable price.

“*I'm convinced there is a consumer base that likes and wants ECDs.*”

Jim Martone  
General Manager/VP Marketing,  
Trauma Records

# Enhanced CD Solutions

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“Apple has always been ahead of the curve when it comes to working with developers and artists. They constantly provide us with useful tools and new technologies. The Interactive Music Toolkit from Apple allows the professional recording artist and developer to take the creative process to a new dimension.”

Leo Rossi, Technical Advisor  
EMI Record Group and  
Principal of Highway One  
Media Entertainment

## What hardware do I need to create enhanced CDs?

According to many developers, the ideal workstation (as of January 1997):

- Power Macintosh 8500/150MHz
- Internal 2GB Hard drive, 128MB RAM, 8x CD-ROM drive
- External 8GB hard drive array for audio/video capture with SCSI-2 card
- Media 100 video capture card
- 17" monitor
- Flatbed scanner
- ProTools PCI audio card (16 channels)
- Yamaha 4x CD-R burner
- Toast v3 CD-R software
- Fully networked with ethernet
- ISDN modem

Enhanced CDs can be created with as little as a PowerBook with 14MB RAM, but more is better in terms of processor speed, RAM, and hard drive storage.

## What is authoring?

When you “Author,” you use pre-existing tools to create interactive content without the use of core computer languages such as ‘C+.’ Authoring usually refers to programming by non-programmers, even though authors may have programming skills. Many authoring programs use an intuitive, graphical interface and “drag-and-drop” assembly. This allows the user to create complex interaction without having to understand the underlying computer language.

Authoring tools allow you to use technologies such as QuickTime video, audio, graphic elements, and QTVR together in different ways. You use specific authoring tools based on your needs and the style of the tool.

## What is Apple Media Tool?

Apple Media Tool is a ‘drag-and-drop’ visual authoring environment. Apple Media Tool lets you assemble and synchronize graphics, text, sound files, and QuickTime and QuickTime VR movies without scripting or programming.

Apple Media Tool supports PICT files, AIFF and WAV sound files, RTF (rich format text), and QuickTime and QuickTime VR movies.

<http://amt.apple.com>

## What is the Apple Interactive Music ToolKit?

The Apple Interactive Music ToolKit (AIMT) is used with Apple Media Tool to create ECDs for play on Mac OS and Windows platforms.

You use AIMT with Apple Media Tool to assemble the interactive portion of your ECD. AIMT also has a Lyric Synchronizer utility that synchronizes lyrics to music.

[http://www.amp.apple.com/imt/downloads/AIMT\\_installer.sea.hqx](http://www.amp.apple.com/imt/downloads/AIMT_installer.sea.hqx)



### **What about Director 5.0?**

A widely used authoring tool from Macromedia. Use Director 5.0 to import and integrate different media elements, such as 2D and 3D graphics, animation, sound, and digital video, into your stand-alone interactive projects. Director allows you to develop on Macintosh OS, Windows 95, NT, or 3.1 then deliver files on Macintosh OS, Windows 95, NT, and 3.1; ECD, and the Internet using Shockwave.

<http://www.macromedia.com>

### **What about mTropolis?**

An object-oriented authoring tool from mFactory that uses a time-saving drag-and-drop programming interface. By combining mTropolis applications with mPire, the company's Internet software, you can use new hybrid and streaming technologies to deliver your content over the Internet and Intranets.

<http://www.mfactory.com>

### **What if I need a tool to do something it normally can't?**

Xtras, XObjects, XCMDs, and custom C programming expands the basic features of most authoring programs. For example, to play CD Red Book audio from Director you will need to use an XObject (AppleCD XObj in Director for Mac, MCI commands for PC) to send commands to the CD player hardware in your computer.

Macromedia, with ION, is providing a new ECD Toolkit. It's new and improved ECDCTRL XObject and allows command controls to work cross-platform.

<http://www.macromedia.com/software/xtras>

### **How do I create ECDs linked to the Web?**

You can use XObjects. XObjects such as ZapApp and Marionet (check the Macromedia Xtras Website for more details <http://www.macromedia.com/software/xtras>) create Web links by finding and opening your users browser (Netscape, Microsoft Explorer, or any other file that can open an HTML file). In contrast, XtraNet XObject, by Human Code and distributed by g/matter in San Francisco, lets you set-up Web links from within Director for FTP, chat, and multi-user gameplay.

<http://www.humancode.com>

<http://www.gmatter.com>

You can also use text-based search engines and databases that work with Director assets (V12 and FileFlex are two of many). Visit the Macromedia Website to find out more about Xtras/XObjects.

<http://www.macromedia.com>

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### **How do I know what tools I need?**

You can extend the performance of many authoring tools, such as Apple Media Tool, by using 'add-on's' such as XCMDs. Got to Multimedia Authoring.

<http://www.mcli.dist.maricopa.edu/authoring>

They've got info on extensibility tools with links to over 60 authoring resources.

### **What is a Hybrid CD?**

Hybrid CD is an ECD or CD-ROM that plays on Macintosh and Windows and connects to the Internet. The connection could be an Internet link, a homepage, a chat space or an interactive multiplayer game.

Hybrid CD used to mean the CD-ROM or ECD played on your Mac and PC. It still does but now the Web link is included in the description.

### **What do I use to author for the Web?**

Shockwave and mPire are "plug-ins" for Web browsers. They let you playback Director movies and mTropolis projects directly from the Web. So you put larger assets, such as high quality audio and video, on the ECD and your time-sensitive material gets updated from the Website.

<http://www.macromedia.com>

<http://www.mfactory.com>

### **What is Virtual CD?**

Virtual CD, or VCD, allows the enhanced portion of your disc to live exclusively on the Web. This means a CD can become 'enhanced' from a connection to interactive content on the Web.

### **What about licensing fees and logos for QuickTime and QuickTime VR?**

You need to follow certain guidelines and legal requirements to use QuickTime and QuickTime VR. Contact the Software Licensing department before you use produce written materials, such as manuals and disk labels, that include QuickTime or QuickTimeVR. You must execute a license agreement before distributing a product that contains Apple software. Contact Software Licensing:

Apple Computer, Inc.

Software Licensing M/S 198-SWL

2420 Ridgepoint Drive, Austin, TX 78754

Phone: 800-793-9378 or (512) 919-2645 U.S.

Fax: (512) 919-2120

email: [sw.license@apple.com](mailto:sw.license@apple.com)



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## RECOMMENDED PRACTICES FOR DEVELOPERS

The Interactive Multimedia Association (IMA) has a very helpful guideline for developers. If you follow the guidelines, it may help your enhanced CD to perform better. Check out the IMA Developer Guidelines.

[http://www.ima.org/cdmatch/rec\\_prac.html](http://www.ima.org/cdmatch/rec_prac.html)

### **What about logos?**

You need to use logos when you use a company's software to make a commercial product. This includes QuickTime, QuickTime VR logos, "Made with Macromedia" logo, mFactory logo, and others.

Speak with your lawyer, record label or hiring company to make sure you use logos properly. Most logos are included with the program or are available once a software licensing agreement is completed.

### **What about the Enhanced CD logo?**

The RIAA wants you to use the enhanced CD logo. Most major labels do but some, such as Sony, released ECDs in 1996 without using the enhanced CD logo from the RIAA. Instead Sony registered the trademark name of 'CD EXTRA' to use on their ECDs. You can get the Enhanced CD logo from the RIAA by contacting:

Rush Jones  
Recording Industry Association of America  
1020 19th Street, NW, Suite 200  
Washington, DC 20036  
Tel: 202-775-0101

If you're making a Blue Book enhanced CD and want to use the CD EXTRA marketing logo, you must first sign a licensing agreement with Sony. For information contact:

Tomoki Mabashi  
General Manager Trademark and Design Department  
email: [mabashit@tmd.sony.co.jp](mailto:mabashit@tmd.sony.co.jp).

### **How do I playback audio so it sounds like a regular audio CD?**

You can make your ECD sound like a regular audio CD. One trick, load all your elements into memory before you play the Red Book audio. Why? Because the CD drive can only read one thing at a time from the ECD. You'll interrupt the audio if you try to load anything else. Most ECDs sound better today because developers use Red Book more creatively.

### **Can I use AIFF or WAV files for my enhanced CD Audio?**

Yes, you can use AIFF or WAV format files to playback audio but beware. Your computer can read the AIFF or WAV files but they take up a lot of disc space at full bandwidth (44.1kHz, 16-bit). Your disc's performance might suffer with so much data coming "through the pipe."

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### **What about compression?**

Use compression so your audio plays back at full bandwidth while using less space and processor cycles more efficiently. Here's one common compression technique—use QuickTime Audio-only movies and compress the audio using the IMA4 algorithm. This reduces the original size to one-fourth.

Macromedia Director 5.0 allows playback of AIFF IMA4-compressed files, as well as QuickTime audio-only movies. QuickTime movies give you the added functionality of timing references like timecode and frame rate.

### **What audio editing software should I use?**

Audio editing software, such as ProTools and SoundEdit 16, give you precise waveform editing as well as sample rate and file conversion. As with graphics tools, the audio software lets you use custom “plug-ins” to extend your program's functionality.

The Audio Links Website is the best place to find information on audio editing software. The site has many links to manufacturers, FAQs, and other audio resources.

[http://www.cyborganic.com/People/paul/Sound\\_Research/audio.html](http://www.cyborganic.com/People/paul/Sound_Research/audio.html)

### **How much ROM data can I put on my ECD?**

It sounds simple but you've got to know exactly how much audio is on your enhanced CD. You have an album that has nine (9) audio tracks. The total length of the album is sixty two (62) minutes, thirty four (34) seconds and fifteen (15) frames [62:34:15]. How much CD-ROM data can I put on the ECD?

Jerry Wanero, VP Warner Advanced Media Operations, runs the math for us...

You have seventy-four (74) minutes and thirty (30) and zero (00) frames [74:30:00]. The InterSession Leadout and Leadin together require two minutes and thirty seconds (02:30:00). There's also two seconds (00:02:00) required for both the CD-ROM Pregap and Postgap in the second session. This gives you a total of two minutes and thirty-four seconds (02:34:00) of unusable real estate for your ROM data.

Here's a walk-through step-by-step:

Step 1:  $74:30:00 - 62:34:15 = 11:55:60$  {eleven minutes, fifty-five seconds and sixty frames}

Step 2: For this example we will use a digital silence of two minutes and two seconds  $11:55:60 - 02:34:00 = 09:21:60$  {This is the amount of time available}



Step 3: [Convert time to CD frames (or sectors)] { 1 sector = 1/75 second, 1 second = 75 sectors, 1 minute = 4500 sectors } \* \* \* nine (9) minutes to sectors; 9 (minutes) x 4500 (sectors/minute) = 40500 (sectors) twenty-one (21) seconds; 21 (seconds) x 75 (sectors/second) = 1575 (sectors)

Step 4: [Total the number of sectors] 40500 (sectors) + 1575 (sectors) + 60 (sectors) = 42135 (sectors). There are 42135 sectors available for the CD-ROM data. How does this translate to bytes of data? There are two (2) Kilobytes {2048 bytes} of user data per sector, therefore; 42135 (sectors) x 2048 (bytes) = 86,292,480 bytes or 84.270 Megabytes of data available for the CD-ROM data.

### **What are good tools to compress video?**

If you're compressing QuickTime movies, Movie Cleaner Pro from Terran Interactive, Inc. is a good tool. It's got features such as Drag & Drop Batch Processing, Suspend & Resume Compression and integrated Movie Expert.

<http://www.terran-int.com>

### **What are good tools to edit video?**

It's a matter of choice and budget which tool you use. If you have deep pockets, a dedicated non-linear editing system such as an Avid is the way to go. It works at broadcast quality and makes special effects rendering a breeze in near-real time.

But Adobe Premiere and VideoShop costs less and gets the job done. With these tools, a little patience can get great results. Remember it's important to have lots of RAM in your system whatever you use.

### **What about special effects?**

Adobe After Effects is widely used by graphic designers. Use it, or other special effects programs, to create composites, 2D animations, and special effects for your ECDs.

Go to the QuickTime developers page at <http://quicktime.apple.com/dev/tool.html> to find more information on tools available for digital video.

### **What's in the Apple Interactive Music Toolkit?**

There are three major parts to the Apple Interactive Music Toolkit: the Apple Interactive Music Tool (the application), the Apple Media Tool with Music Engine (a custom engine for use with Apple Media Tool 2.0) and Lyric Synchronizer (a lyric and movie synchronization tool).

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### **How do I create an ECD using the Apple Interactive Music Toolkit?**

Here's a step-by-step approach to using Apple Interactive Music Toolkit to create enhanced CDs.

1. Design and plan your finished product.
2. Use the AMT Music Engine to create the interactive segment of your ECD.
3. Use Lyric Synchronizer to synchronize any lyrics you need with their respective movies (or sound track).
4. Fill out the desired fields in the Apple Interactive Music Tool (AIMT).
5. Import the files generated in steps 2 and 3 into AIMT.
6. Make a QuickTime Album Container (QuAC)\* file using the AIMT menu item "Make QuAC File."
7. Press your QuAC file, along with Red Book audio tracks onto a CD using a CD-ROM mastering program such as Toast 3.0.2.
8. To play your newly pressed ECD on either a Macintosh or Windows machine, use the appropriate AppleCD Player application.

\*The QuAC File is the file read by the AppleCD Player that allows the interactive experience.

### **What is a Blue Book enhanced CD?**

A Blue Book enhanced CD is an audio disc that contains audio tracks in the first session and a data track in the second session. The data track conforms to the specifications of the Blue Book, which requires a precisely defined file structure.

### **What is CD EXTRA?**

CD EXTRA is a copyrighted name. You can use it on your ECD only if it conforms to the Sony-Philips Blue Book standard. Discs which have a second session in any other format are not really CD EXTRA format. You will need to contact Sony for licensing information.

### **How do I use Toast to make Blue Book ECDs?**

With Toast CD-ROM Pro, you can make enhanced CDs to Blue Book specification. With Toast, the first step is to create an Audio CD with the tracks you want. Be sure to choose 'Write Session' rather than 'Write Disc' when making the audio disc, or Toast will not append the Enhanced Music CD session to the disc.

Toast then creates the enhanced CD from a pre-made Blue Book directory hierarchy, or a QuAC file created with the "Apple Interactive Music Toolkit" (AIMT).

## Section Six

Enhanced CD  
Solutions



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The ECDs are hybrid Macintosh HFS/ISO-9660. The ISO part contains all the files in the Blue Book folder of the Macintosh volume. Files in the Blue Book folder are automatically shared, with two exceptions:

“INFO CDP” is duplicated in the ISO part, because it has to be placed at relative sector address 75 according to the BlueBook standard. The MPEG pictures are not shared either because they are recorded in form 2 sectors.

Before Toast writes the disc, it verifies the integrity of the data structures. If everything is fine, the CD is written.

### **What is a QuAC?**

In 1995, Apple introduced the QuickTime Audio Containable standard for documents that contain information for music CDs, as well as pictures and optional interactive controls. When you choose a QuAC file as your data source for an enhanced music CD, Toast will create a structure like this: lc = language code, e.g. “de” for German, “en” for English, etc. nn = Track number; 01, 02, . . . for the single tracks, 00 for the whole album.

### **How does Toast handle data files?**

Toast will only create files for data that exists, but will always create the INFO CDP, at least one SUB\_INFO.lc and four picture files. Picture files will be created for the front cover picture of the album only.

Toast will substitute MPEG files by using a set of internal replacements pictures (showing the CD EXTRA logo). If you want, you can replace these files with your own sectorized MPEG pictures in the proper resolutions (NTSC or PAL). The QuAC file will appear at the root level of the ISO volume.

# Sue Simone

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Sue Simone  
Executive VP  
Myriad Entertainment, Inc.

Sue Simone, saw her share of gold masters while working at DMI. Now, as founder and Executive VP of development house Myriad Entertainment, Inc., Simone tells us a thing or two about pressing plant preparation.

## THE PRESSING PLANT

### **Blue Book manufacturing plants.**

Sony and Cinram have been manufacturing Blue Book discs for quite some time. Most manufacturing plants can make multisession discs, too, particularly from multisession CD-Rs.

### **Provide plant with CD-R.**

The developer should provide the complete multisession CD-R master disc to the pressing plant. Most labels want the plant to provide the developer with the music on the first session of a CD-R.

### **Three's a charm.**

It's helpful if the plant gives you three copies. You're better off with one copy to return to the label for sign-off and one or two backups. Then the developer can put the enhanced ROM portion on the second session, and provide a complete master to the label for approval and to the plant for mastering. This lets the plant maintain the audio master original in its vaults while providing exact masters and proof discs for sign-off and manufacturing.

### **Price.**

These days if the master is a complete multisession CD-R, the price per disc is often the same whether they are ECD or regular CDs. But pricing does vary by manufacturer and quantity. This basic price equality is our manufacturing contribution to assist the success of the ECD format.

## Section Six

Enhanced CD  
Solutions



### Jerry Warnero

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Jerry Warnero, Sr. Multimedia Engineer at WEA Manufacturing, Inc. has suggestions on a few things to look out for when preparing Blue Book enhanced CDs for the pressing plant:

- a) Consider the two minutes thirty-two seconds (02:32:00) of unusable area between the sessions. This accounts for the InterSession Lead Out, InterSession Lead In, and the two (2) seconds of the CD-ROM Pregap (required).
- b) Also, consider that one (1) minute of play time is equivalent to approximately nine (9MB) Megabytes of data. NOTE: Keep in mind that this in no way reflects a data rate value.
- c) If you are providing only the data content to your customer's manufacturing facility, remember to include a list of files (if this is a hybrid, include separate file lists for each platform. . . be sure to indicate if there are any hidden folders or files, as this will be valuable information when the manufacturing facility joins the two (2) sessions of information {Session 1—Audio, Session 2—ROM data}).
- d) Don't forget to get approval and legal releases for your content, as this is usually the cause of more delays and revisions than any other reason. Keep communications open and constant with the label and client.

Jerry Warnero  
Sr. Multimedia Engineer  
WEA Manufacturing, Inc.

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## TOP TEN WEB RESOURCES

If you're looking for something, chances are you'll find it on the Web. Here are top ten locations on the Web you should know. Much of what you'll find is free. Check back soon because new resources are posted often.

### **Apple Media Program**

<http://www.amp.apple.com>

Designed for content developers and the creative community, the Apple Media Program (AMP) offers a breadth of resources and information to help keep interactive media developers up-to-date on Apple's offerings for authoring and playback.

Music has long been one of the most dynamic areas of interactive media, often driving the exploration of new forms of creative expression. With the introduction of the new enhanced CD format and the explosion of music-related World Wide Web sites, interactive music is hotter than ever. The Apple Media Program is designed to meet the needs of musicians, record labels, interactive music developers, and anyone involved in the music industry who would like to learn more about the intersection of music and technology.

### **Apple Media Tool /listserver/newsgroup:**

<http://amt.apple.com>

Apple Media Tool is a powerful authoring environment. You can easily develop CD-ROMs, interactive media applications, and kiosks for Mac and for Windows. No scripting or programming is required. Apple Media Tool supports a variety of media types including QuickTime, audio files, RTF (rich text format), PICT images, and it provides the most precise control for QuickTime VR in the industry. This site includes links to the listserver/newsgroup page as well as support areas.

### **ECD Database**

<http://www.musicfan.com>

Whether you're a recording artist, record label or software developer, or generally a digital wannabe, you'll find this an invaluable resource. You can submit your products for inclusion in the formidable ECD Database, research developers, see what's hot, and find links to many other resources. Good consumer information here as well.



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**QuickTime & QTVR /listserver/newsgroup:**

<http://quicktime.apple.com/dev>

<http://qtv.quicktime.apple.com/dev>

QuickTime Developers Page. Developers and content providers can find a comprehensive collection of QuickTime resources here. QuickTime is the multi-platform, industry-standard interactive media architecture used by software tool vendors and content creators to create and deliver synchronized graphics, sound, video, text and music. QuickTime is not only the best choice for “author once, playback anywhere” interactive media, but the leading choice: an estimated 20,000 sites on the Web now offer QuickTime content, and 1,500 leading CD-ROM developers are releasing more than 200 new QuickTime-enhanced titles every month! This site includes links to download software and to the mail listserver and newsgroup forums.

QuickTime VR Developers Page. Developers and content providers can find a comprehensive collection of QuickTime VR resources here. Award-winning QuickTime VR software for Macintosh and Windows brings virtual reality to your desktop without any special equipment. Use it to experience a 3D photographic or rendered representation of any person, place or thing. Use your mouse and keyboard to rotate objects, zoom in or out of a scene, look around 360 degrees, and navigate from one scene to another. This site includes links to download software and to the mail listserver forum.

**Terran Interactive, Inc.**

<http://www.terran-int.com>

Terran Interactive, Inc., is the leader of the QuickTime video compression tool market. If you are creating QuickTime movies for a CD-ROM or Website, Movie Cleaner Pro will save you hours of frustration with features like Drag & Drop Batch Processing, Suspend & Resume Compression, integrated Movie Expert, and much, much more. This is a must-have addition to any interactive media producer’s toolbox. This site has tech support, QuickTime tips, FAQs, and other useful links.

**Macromedia**

<http://www.macromedia.com>

The place to go for updates, info, and XObject/Xtra listings that extend Director’s functionality. Also find out about upcoming events and related Macromedia technologies such as Shockwave.

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**Multimedia Authoring Website/listserver:**

<http://www.mcli.dist.maricopa.edu/authoring>

“Authoring” refers to “programming by non-programmers.” This site, first developed for The Authoring Group (TAG) at the Maricopa Community Colleges, has grown to be a popular resource with users of many different tools. Links to more than 60 authoring tools, many Websites, case studies, and the highly-regarded Director Web and Direct-L listserver (<http://www.mcli.dist.maricopa.edu/director>). Real-world help from other developers.

**UpdateStage**

<http://www.updatestage.com>

A bi-weekly harvest of info-nuggets on Macromedia Director and interactive media development culled from online discussion groups and the personal Director adventures of site author Gretchen Macdowall. Great insight and info on quirks, bugs, and pitfalls presented in an entertaining and informative manner.

**mTropolis**

<http://www.mfactory.com>

mTropolis is an authoring environment for the creation and distribution of interactive media applications and titles. It provides four major benefits to interactive media producers and programmers: portability, performance, productivity, and extensiveness. While some of these benefits are available from other tools, mTropolis provides all of them simultaneously. This site includes information, support, and links to listservers.

**Other Apple URL's**

<http://www.masters.media.apple.com>

Information on various marketing programs and events aimed specifically at the music industry and ECD developer community.

<http://www.live.apple.com>

Information on various webcasts and music cybercafes.

<http://quickdraw3d.apple.com>

Learn all about Apple's foundation for 3D graphics, third-party applications and extensions.

<http://live.apple.com>

Apple's webcasts let you experience live events using the latest Internet multimedia technologies.

<http://dev.info.apple.com/dev/games>

A bunch of technologies designed so game developers can spend more time making games cool than making them work.



## Support Areas, FAQs, Info, etc:

If you're having problems playing an ECD or want information on the latest Blue Book driver, you'll probably find your answers here. A great resource whether you're a developer, label, or ECD music fan.

<http://www.emf.net/~mal/cdplus.html>

A resource guide by Malcolm Humes for Enhanced CD and Blue Book. This page is intended as a "getting started" resource for developers and end users looking for more information on ECDs, Blue Book, and multisession ROMs.

[http://www.nettwerk.com/nettwerk/enhanced\\_faq.html](http://www.nettwerk.com/nettwerk/enhanced_faq.html)

The Nettwerk Nettmedia Enhanced CD Frequently Asked Questions File.

<http://www.sony.com/Music/CDEXTRA/cdx.html>

Sony Music's explanation of CD EXTRA in layman's terms. Very helpful troubleshooting tips for playing CD EXTRA on Macintosh and Windows.

<http://numill.com/home/indexNS.html>

Answers to questions about nu.millennia, Inc. enhanced CD products that they hear most often. Take a look; your problem and solution might be here too. Good explanations on ECD formats elsewhere on their site.

## TIMETABLE FOR ECD

You need to know what your title is before you know how long it will take to create. But a typical timetable for an ECD release might be:

- 1-2 weeks for conception, storyboard, gathering of assets, and label approval of concept;
- 2-4 weeks for initial production up to "alpha" stage (working model), plus 1-2 weeks if creating original graphic assets;
- 1 week for label approvals and changes;
- 1-2 weeks for cross-platform porting up to "beta" stage (ready for initial testing);
- 1 week for a short production run of silver discs for testing;
- 2-3 weeks for full testing and bug fixing, then burning of the Gold Master before finally sending the ECD to the plant for replication.

# The Future

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## THE TECHNOLOGY ROUNDTABLE

A lot happened to ECD and Web-based music in the past year. New standards were agreed to, new software tools were made, and new creative was seen and heard by music fans everywhere.

Heather Gold, Apple Computer, Inc., Jonathan Grayson, Macromedia and Mike Evangelist, Asarte discuss their company's roles and evangelism of ECD and Web-based music.

“*The decision to settle on a single format, Blue Book, was the most significant event from the past year in advancing the acceptance of ECD in the minds of the general public and the music industry.*”

Jonathan Grayson  
Macromedia

### **After a year of competing ECD solutions, the industry is settling on Blue Book as the official ECD standard. How is Blue Book going to advance the acceptance of ECD by the public and music industry?**

GOLD: One universally accepted format will now enable consumers and labels to simply look at their CDs as "enhanced." This is a key step toward making terms like "format", "pre-gap" and "driver" unnecessary for consumers who want to play ECDs. The Macintosh will, however, continue to allow consumers to play their pre-gap discs and all formats of ECDs that are already in the hands of consumers. Ending format discussions removes a giant headache that blocked wider acceptance of ECDs in the music industry, which can now spend promotional resources on developing, strategizing and marketing their enhanced CDs.

GRAYSON: The decision to settle on a single format, Blue Book, was the most significant event from the past year in advancing the acceptance of ECD in the minds of the general public and the music industry. It introduces a single target for developers, platform vendors, the music industry and the public.

EVANGELIST: While the pre-gap method was still being used, it was difficult for some record producers to decide which format to use. Now that the Blue Book has emerged, I believe many 'fence-sitters' will be able to move forward. At the Musicom2 conference we saw some significant commitment to develop additional ECD titles. Public acceptance will come as a natural consequence of more and better titles being produced. Also, the record companies will be more inclined to promote the whole concept, now that they don't have to worry about the 'standard' changing under them.

### **As evangelists of ECD technology, what is your company doing to promote the market? How are you assisting developers and what are your future plans with regard to ECD evangelism?**

GOLD: Apple has stood behind the Enhanced CD from its inception. The Macintosh continues to play all ECDs, regardless of format and QuickTime continues to be an essential element for creating and playing back enhanced CDs. Specifically, we have developed the Apple Interactive Music Toolkit, a tool that makes it very simple to create Blue Book ECDs, as well as a new version of the AppleCD Player which plays Blue Book ECDs. This is the only player that allows ECDs to experience the multimedia within a simple interface. The player will be available on <http://www.amp.apple.com>.



Apple also has the Enhanced CD Database Website at <http://www.musicfan.com> that promotes ECDs, houses the biggest listing of ECDs and sells them through a fulfillment partner. Through this website, a developer listserv we helped to start and our AMP program, we keep in close touch with ECD developers.

GRAYSON: Macromedia is working with many of our key partners, including the major music companies, to promote ECD. In fact, the Macromedia Director solution for ECD is being used today for over 90 percent of all published titles that employ the technology. Our customers want to publish their content using all options from ECD to the World Wide Web. Macromedia's products let them do that efficiently and productively.

EVANGELIST: Astarte was one of the first advocates of the Blue Book format, and we will continue to enhance our tools to make it easier to produce compliant titles. We strive to make our tools 'invisible', so they don't hinder the creative process. Beyond that, we plan to participate actively in the new 'ECD Group' which seeks to promote the ECD format and recommend ongoing enhancements that will benefit the entire industry.

### **How will ECD survive with the advent of DVD? Will one replace the other or will they co-exist?**

GOLD: Well, in some respects, DVDs to the music industry will act like really big ECDs. The idea of a consumer listening to music and experiencing interactive media from the same disc will not change. You'll just be able to have more music, more interactive media and more player choices. When DVD truly establishes itself as a format and becomes as pervasive as the CD, then it will co-exist with and then replace the function of ECDs. Right now we're living with the promise of DVD, and the reality of ECDs.

GRAYSON: The ECD format has a lot of mileage, especially given the standardization around the Blue Book format. DVD will also be an exciting way for vendors to get multimedia and audio to their clients. We think that they can co-exist and Macromedia will provide support for both technologies going forward.

EVANGELIST: DVD is just a delivery medium; and we believe it will take a long time for DVD to achieve significant market share. The opportunity for ECD is huge, given the incredible number of PCs being sold for home use. Whether DVD succeeds or not, there's still a big opportunity in ECD for a least two to three years. In addition, the skills and perspective needed to create great ECD titles are totally transportable to DVD development.

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“ [In the future] the average development budget for an ECD will drop, and the number of ECDs produced per label will increase. ”

Heather Gold  
Apple Computer, Inc.

### **If one could look into the crystal ball where will ECD be in a year?**

GOLD: There will be a great increase in hybrid ECDs that work between the Web and the consumer's CD-ROM drive. The CD-ROM drive will remain important in getting quality multimedia to consumers for some time, because true DVD penetration and improvement with bandwidth problems are still several years down the road.

The average development budget for an ECD will drop, and the number of ECDs produced per label will increase. The idea behind the Apple Interactive Music Toolkit was to allow the quick creation of titles at a lower cost and the creation of enhanced content that could be posted on a web site (Virtual CD). Enhancing CD content will be used as a cost effective marketing tool and will take hold in some less glamorous but important uses like promoting bands and as trailers to promote other products, drawing from Capitol's success with Romeo & Juliet. The explosion of the Web has only increased the public's appetite for visual aspects to music. The ECD is still a brilliant marketing tool and creative option that is ready to use. ECDs enable the record industry to generate new excitement and visuals around music and the music fan has a new way of experiencing music.

GRAYSON: With the stated plans of Apple, Microsoft, and the music industry to re-launch ECD in the first quarter of 1997, this should be the banner year for the format. This is especially true when taken in the context of burgeoning Web-based delivery of content—the so-called 'hybrid ECD.' Macromedia will provide the most efficient and cost effective way to take advantage of this surge in popularity and by the end of the year any artist who is not delivering a multimedia enhanced product using Director, will seem to be behind the times and out of touch.

EVANGELIST: I expect five primary changes:

- All the major and most minor record companies will be producing at least some ECD titles.
- Most CD-ROM drive suppliers will have updated their drivers to insure compatibility.
- The industry will adopt some sort of "add on" to the Blue Book standard that addresses the interface and usability issues that have plagued the early-adopters.
- There will be more tools available for producing ECDs. Content developers will be able to match the tools to their particular style and experience.
- The Enhanced CD logo will be seen on a lot more discs, and consumers will start to expect it, much the same as a movie buyer might expect the Surround Sound logo.



## Marc Geiger

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Marc Geiger left A&R, Marketing, and New Media at American Recordings (Black Crowes, Johnny Cash) to start Artist Direct with agents Don Muller and Bill Elson. Artist Direct, representing Pearl Jam, the Beastie Boys, Soundgarden, Beck and others, is a record company through RCA and owns The Ultimate Band List at <http://www.ubl.com>. Geiger, one of the founders of Lollapalooza, reads Soundscan as easily as html, putting him in rare company in industry circles.

### **What is the goal of Artist Direct?**

The goal of Artist Direct is to help usher in new distribution systems for digital media, especially music. Artist Direct is all about one-to-one marketing from artist to consumer so we can build a bond or direct communication and sales path directly to the fan from the artist. This will help even out the economics for artists in regards to the royalties and ownership of their art.

### **Are artists asking about ECD and the Web, or is it something Artist Direct brings up in discussions?**

I really think we blew it with ECD. It needs to metamorphisize into something new. The goal is to get kids online! By now, most artists and managers know at least a little bit about the Web. Our goal is to have them believe that by their direct involvement, they can take control of their art, ownership, and distribution of products, like tickets, posters, videos, CDs and merchandise. They can then greatly increase their percentage take on each.

### **Has the music industry changed its traditional way of thinking to take advantage of technology as a marketing tool?**

Not really. Some of the better Websites—Epic, American, Warner Brothers—are doing a little. But nothing is going to change until real CD sales start directly from the record companies, rather than the current way of paying the middlemen and creating new record clubs.

### **What should ECD/Web developers do to gain understanding of artists and the music industry in general?**

Forge their own paths and stop thinking about how to sell bad products at software prices. Don't think about the music industry; think about a great product, and show a demo to a great artist. Then we might get something we all want to purchase.

### **How are the business paradigms changing in the music industry as it relates to new media, or is the future still “get the song, get on the radio, get on tour, get on MTV...?”**

The future holds a lot of promise. There will be a huge nichification of music. Average sales of music CDs will plummet. There will still be hits and platinum artists but fewer of them, only 500 out of 100,000. Mass media, radio, and MTV will always be the most powerful. However, now there's this great underground distribution system, and we're using it at Artists Direct to help all those who cannot get on radio or into retail.

“ [ECD/Web developers should] think about a great product, and show a demo to a great artist. ”

Marc Geiger  
Co-Founder,  
Artist Direct

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## Phil Ramone

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“ *The Internet link is the living billboard for our artists. [You’re] taken to the Internet, to this other side of the artist. That way we’ll be able to provide fresh material, interviews and maintain a closer bond with our fans.* ”

Phil Ramone  
President,  
N2K Encoded Music

The explosion of the Web, the growth of home computers, and advances in processor speed have changed our entertainment landscape. Today’s entrepreneur has one foot firmly planted in Silicon Valley and the other in Hollywood. N2K is one such entrepreneurial company. Its sites—Music Boulevard, Jazz Central Station, and Rocktropolis—are several of the most popular music sites on the Web. The company recently launched record label N2K Encoded Music. The label merges online and enhanced CD technology with traditional music production. Veteran record producer Phil Ramone (Billy Joel, Barbra Streisand, Paul Simon) is leading the charge for N2K Encoded Music. Ramone took a rare time out from the studio to give his thoughts on the label.

### **What is your vision for N2K as an enhanced CD label?**

There are really two sides to N2K. To make great records you have to have great songs and production. You get that by encouraging and building writers and producers in a way that attracts artists you want to your label. We do that at N2K by concentrating on songs, production and building careers. We’re not only concerned about the hit single. On the other hand, we have the Telebase unit which delivers graphics and interactive enhancements to the music we release. It’s a natural marriage for our company, our artists and the public.

### **Are all N2K releases going to have Web links?**

Yes, the Internet link is the living billboard for our artists. When you buy an N2K release, you’re taken to the Internet, to this other side of the artist. That way we’ll be able to provide fresh material, interviews and maintain a closer bond with our fans. Nothing will be set in stone like many ECD releases. We’ll have greater flexibility and greater communication with our consumers. We can use that information to better market our artists. To know what the fans want and what their interests are. This is a very valuable process that we believe will make us a better, more competitive record label.

### **There has been some industry resistance to ECD, when and how will this change?**

We’re not charging anything extra for our ECDs so that, of course, will help. But history shows us if a musical genre takes off, everyone will embrace it. The same thing goes with ECD. It may take just a bit more time. The industry is having a tough time right now but it’ll come out of that. It always does. When you start to go to stores and see ECD kiosks and you can see and hear the disc, you’re going to start to get acceptance. Consumers want information and when its free to look at you’re going to get an audience. I think the ECD sections in retail are going to start to bring music consumers into the stores again.



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### **What is the development process like at N2K?**

We have a project starting soon and alongside the recording we're moving in with cameras. We're developing a concept as we record. We start from day one. We're showing bits on the Web and fans get to see a work in progress. We'll give our artists cameras too and I think a lot of interesting things will come out of that. We have to look ahead to see how we can continue to innovate. We are getting prepared for DVD and the day when every disc has an interactive media component to it.

### **What are the N2K ECD releases going to be like?**

We're not shooting full-length motion pictures. As consumers, we like to surf. We're impatient. At N2K we're giving quick information and experiences that the music fans want. Tour dates, artist interviews, peeks in the studio. But the key is this information will be able to be updated. That's the power of the Internet.

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## DVD (DIGITAL VIDEO DISC)

A CD-ROM format that holds 4.6 gigabytes of information, nearly eight times more storage capacity than a normal CD-ROM.

DVD has the support of the world's entertainment and electronics companies. It's a superior playback device for the motion picture industry and meets the specifications of the computer industry. But ECD developers have different opinions about DVD.

"We think the DVD-ROM market will have a huge impact on interactive media content development," says Jim Baker, President of 21st Century Media. "Full screen video and scaleable digital audio is the Holy Grail of professional interactive media developers. It's still early but we're already thinking about our first DVD project."

Perry Hunter of nu.millennia, Inc. is not moving as fast. Hunter says, "It's doubtful we'll develop for DVD for at least a year. That's because the installed base is so small. This might change if we get a cost-effective OEM deal with a DVD vendor. But there's confusion in the marketplace from ECD formats and compatibility issues. A guarantee of backward compatibility with Blue Book specs would help."

"DVD for us means MPEG-2, lots of links, big databases, high-resolution versions, outtakes, and more on-screen interviews with the artist," says Mike Koenigs of Digital Cafe. "But the real issue is money. The music business spends a lot of money promoting their artists already. They might not want to pay for development of DVD except for the larger bands. The key is to find the right financial model that can be put together to satisfy everyone, including the music publisher, developer and consumer."

DVD has the opportunity to provide a more enriching interactive media experience for consumers. That's good news for interactive music developers. But DVD like enhanced CD is a format that needs to develop over time. The future looks bright indeed.

### **DVD Sony Website**

In September 1995, Sony joined eight other companies to create a single, unified standard for the DVD format. The standard defines a disc that maintains the overall dimensions, look and feel of the current Compact Disc but holds seven times the data—4.7 gigabytes per layer, as compared to 680 megabytes for CD.

<http://www.sel.sony.com/SEL/consumer/dvd/index.html>



## Enhanced CD Solutions Case Studies

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The Enhanced CD Solutions Case Studies reviews enhanced CD titles, describing the solution, hardware, and software used along with quotes from members of the development team. This is where you can pick-up development tips from people who've been there, done that. You'll also find there are many different kinds of enhanced CDs to make.

<b>Company</b>	<b>Artist and Title</b>	<b>Format</b>
21st Century Media	Multiple artists <i>Prestige Studios of the World</i>	ECD
Sony Music	Silverchair <i>Freak Show</i>	ECD
Nettmedia	Mobb Deep <i>Hell on Earth</i>	ECD
Digital Waves	Compilation of music and interactive media artists <i>Digital Waves 500</i>	ECD
CircumStance Design	William Shakespeare's <i>Romeo &amp; Juliet</i> Music from the motion picture	ECD
Northeastern Digital Recording	Galaxie 500 <i>GALAXIE 500</i>	ECD

## *Prestige Studios of the World* ECD

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### **Team members**

#### *Executive Producer*

Jim Baker

#### *Producers*

Jim Baker

Eric Blanpied

#### *Production Team*

Andy Lilien

Logan Kelsey

Bill Ulrich

Chris Kawalek

Caroline Baker

### **21ST CENTURY MEDIA**

60 Galli Drive

Novato, CA 94949

Phone: 415-382-7515

Fax: 415-382-7519

<http://www.c21media.com>

### **Label**

studiosource

### **Artist/Title**

David A. Stewart, Eternal, Michael Jackson, James Taylor, Ali Cambell, The Scorpions, and others

### **Description**

A virtual tour of ten of the world's top recording studios: visit the facilities, meet the engineers and producers, listen to music they record, and see the equipment they use. Featured artists include Michael Jackson and Dave Stewart. Connect directly to the Web with the integrated Internet feature. More than 40 minutes of QuickTime video, and virtual environments using QuickTime VR.

### **Software used**

Macromedia Director, Adobe Photoshop, Strata Studio Pro, Terran Interactive Movie Cleaner Pro, Apple QTVR Authoring Suite

### **Hardware used**

Apple PowerMacintosh, Media 100, FWB drives, Peace River Studios 360 head, Canon EOS Elan, Sony Betacam camera and deck

### **Web link:** Yes

### **PRODUCTION NOTES**

Jim Baker, President & CEO

### **Showcase for QuickTime VR**

We wanted to showcase the very latest technologies for interactive media authoring, especially QuickTime VR. The concept of the virtual tour relies on QuickTime VR, so the design of the interface was completely tailored to cater to VR requirements. We also had over 40 minutes of high-quality interviews, shot documentary-style, so video played a major part in the production. We chose Blue Book for the format which at that time was very new. We got help from Disc Manufacturing who did a great job for us.



### **Authoring tools used.**

Macromedia Director is the only serious tool for interactive media developers who want to create sturdy, cross-platform titles right now with a minimum of hassle. At the time, it was also the only tool with QuickTime VR integration, so we had no other choice. Strata Studio Pro was an excellent tool for the 3D environment we modeled, but we now use Electric Image and FormZ for our current projects. I recommend two 'backroom' tools that are an essential part of any project—Debabelizer by Equilibrium and Movie Cleaner Pro by Terran Interactive. We used them to color optimize and compress our movies.

### **Red Book audio playback.**

Producing a CD for audio professionals is daunting because audio is often the most overlooked aspect of any interactive media production. We used 16-bit IMA compression for all of the audio within the interactive media presentation. This gave us the best possible quality given the average consumer's playback platform. As for the Red Book audio, we access that from the interactive part. We created a listening room where the two Red Book tracks can be played through external speakers, and playback controlled with buttons. We used a very early beta of the ION/Macromedia audio tool kit to achieve this.

### **Internet link.**

The *Prestige Studios Of The World* ECD has been out for a while now. At the time, no tools were available for integrated interaction between the authoring tool and the Web. We settled on the inclusion of a Web browser on the CD, which is automatically launched by pressing a button within the interactive program. The URL is preset, so the user hits the studiosource.com site without needing to do anything. The extent of the interaction is a competition located on the site, the answers for which can be found throughout the *Prestige* ECD.

### **Bottom-line system requirements or the 'lowest common denominator' scenario!**

Ah, the 'lowest common denominator' scenario! That old favorite, and the bane of all interactive media developers. Of course, we had to set a platform specification for performance issues; these change almost annually now. The *Prestige* specs were an '040 Mac or 486 Wintel processor, 5MB of available RAM (8MB under Windows), a double speed CD drive and a 14.4k modem.

This year, we'll see the bottom-line figures probably go up to 8MB–12MB of RAM, a quad speed CD drive and 28.8k modem. All of these restrictions force the developer to be very careful in the whole production process. Failure to understand and respond to the average consumer's set-up will result in big problems, lots of technical support, and lots of returns from dissatisfied consumers. This will not help the ECD market flourish.

“ We wanted to showcase the very latest technologies for interactive media authoring, especially QuickTime VR. The concept of the virtual tour relies on QuickTime VR, so the design of the interface was completely tailored to cater to VR requirements. We also had over 40 minutes of high-quality interviews, shot documentary-style, so video played a major part in the production. ”

Jim Baker  
President & CEO  
21st Century Media

## Silverchair *Freak Show* ECD

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### Team members

Jennifer Frommer  
Ian Frommer  
Galo Morales  
Antonio Cruz  
Robert Sagerman  
Nelson Wong  
Jennifer Dunn  
Paul Giordano

SONY MUSIC  
550 Madison Avenue  
New York, NY 10022  
Phone: 212-833-8004  
Fax: 212-833-5482  
<http://www.music.sony.com>

### Label

Epic Records

### Artist/Title

Silverchair *Freak Show*

### Description

Playing with the 'freak show' motif of the album, a virtual reality of traveling through a real-life freak show was created. A video shoot at the Coney Island Freakshow and Coney Island Amusement Park in Brooklyn, N.Y. is included on the disc. The user can roam through rooms in the show and encounter different items about the band and the freak show. Music from the album plays as the user roams. Videos from the current album and the group's previous release are included.

### Software used

Photoshop, Infinity, Adobe After Effects, Premiere, Macromedia Director, Poser  
Debabelizer, Toast CD-ROM Pro, QuickTime, C + + , Sound Edit, CDDA

### Hardware used

Mac 7100/80AV, Mac 8500, Yamaha CDR 100, APS Drive, Jazz Drive, Compaq  
Presario, Compaq Desk Pro, Packard Bell, Panasonic 6400

### Web link

There is a connection to Silverchair's web site, but no browser. If the user has an Internet connection, the title will take them to Silverchair's site.

### PRODUCTION NOTES

Jennifer Frommer, Executive Producer

### A freak show theme important to band.

The goal of the title was to weave in the freak show theme with the new Silverchair album. That was very important to the band. It was also important to provide information for the fans that was not available anywhere else. Displaying information such as interviews, videos and the making of the album while keeping it within the freak show theme was what the band was looking for.



### **Authoring tools used.**

The title was written in Director because it's the most seamless of tools to use. It lets the developer pull from many different sources. It's much faster to get from start to finish using Director versus C++ . There is also built-in support for sound, video text and interactivity. It's also the easiest tool for cross-platform development. Additionally, Lingo lets you extend your experience beyond the typical interactive media authoring tool because it's a full-fledged programming language.

### **Music playback.**

Music playback occurs in soundfiles using the AIFF format at 1622. There is also audio in QuickTime movies. Sony titles often access the Red Book portion utilizing an XObject. This particular title does not.

### **Three weeks or else...**

The project was given to the New Media department three weeks before it was due. We follow a schedule that the entire label adheres to. If a deadline is missed, the interactive media will be dropped. Therefore, the new media department takes these deadlines very seriously. The goal was met—all production from graphic files to programming and testing, leading to mastering, occurred within the three-week period.

### **Bottom-line system requirements.**

Sony Music adheres to the following standards:

For PC: MPC 2, for Mac: 8MB, double speed CD-ROM drive, 25mhz, 68030 or faster, 7.1, 256 colors, LC III or higher. Most importantly, a multisession CD-ROM drive is necessary.

These minimum requirements greatly affect our development. A great deal of effort is put into writing and testing to these specs. We hope to upgrade minimum requirements as a higher level install base becomes more significant.

“*Displaying information such as interviews, videos and the making of the album while keeping it within the freak show theme was what the band was looking for.*”

Jennifer Frommer  
Executive Producer  
Sony Music

## Mobb Deep *Hell On Earth* ECD

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### **Team members**

#### *Executive Producer*

Gabriel Levy (BMG)

#### *Director*

Lane Dunlop

#### *Technical Producer*

Bob Gourley

#### *Digital Media Editor*

Vanessa Smith

#### *Graphic Artist*

Spencer Chinoy

#### *Photography*

Sue Kwon

#### *Executive Producer for Loud Records*

Steve Rimland

#### *Creative Director for Loud Records*

Ola Kudu

#### *Project Development*

Nick Gutfreund

### NETTMEDIA

632 Broadway, Suite 301

New York, NY 10012

Phone: 212-477-8198

Fax: 212-477-6874

info@nettmmedia.com

<http://www.nettmmedia.com>

### **Label**

Loud Records/BMG

### **Artist/Title**

Mobb Deep *Hell On Earth* ECD

### **Description**

Using photos taken for the title, the Mobb Deep disc gives the user a taste of the Queensbridge projects where the band got its start. The content on the disc includes: clips from previous Mobb Deep videos, an exclusive behind-the-scenes look at the making of their latest video, an exclusive hidden song that can only be accessed with a password from the Mobb Deep Website, band bio, photos, and a complete Loud Record catalogue section. Also available on the disc is Internet access software provided by EarthLink which includes 30 free days of online time.

### **Software used**

Director 5.0.1, Photoshop 3.0.5, SoundEdit 16 2.0, Media 100.2.6, QuickTime 2.5, Movie Cleaner Pro 1.2, Photocaster, Toast 3.0

### **Hardware used**

Macintosh 8500/120, Macintosh 8100/90, Macintosh 7500/100, Media 100 Vincent Video System, Yamaha 4x CDR Burner, Zip Drives, Jazz Drive.

### **Web link**

Not in the true sense of what is now meant by a Web link with enhanced CDs, but yes, in spirit.

### PRODUCTION NOTES

Lane Dunlop, Director

### **ISP key but make sure user experience positive.**

This was the second time we worked with Loud Records and a national **ISP** (Internet Service Provider) on a title. The concept is simple: the ISP and the record label work out a deal in which the ISP includes an installer program that contains everything a new user would need to connect and effectively use the net, including 30 free days of access. In three minutes, anyone can be surfing the net.

## Section Eight

Enhanced CD  
Case Studies



In this case, we had to be sure the software was readily available and accessible for the user and that it installed properly on both Macintosh and Windows platforms. We lost about 10MB of space that could have been used for video or other content. We had to spend extra time working with the service provider to make sure everything that needed to be there was there and that the readme files were accurate. Quite often what is in the best interests of the ISP is not what the record label or artist would prefer. It's part of our job as developer to do everything we can to look out for our client's best interests. The importance of this cannot be overstated. If a user has a bad experience with an ISP, they will remember what label or artist steered them towards the ISP, in which case the label gets nasty emails and you don't get another project from the label.

### **Authoring tools.**

The tools we used are the standard for the industry. We believe Director is the most versatile and cost-effective authoring program for interactive media. We have considered working with AIMT as well as mTropolis, but Director remains the standard. That could change with some of the tools that are coming out from Apple and others, but I wouldn't bet against Macromedia at this point.

As for the other software tools, there are no hidden secrets. Photocaster made a big impact when we started using it a few projects ago. Its ability to import Photoshop files in layers into Director makes screen design much easier. The Media 100 system that we use may be overkill for QuickTime based interactive media applications, but we place great importance on the quality of the video and feel that the Media does an outstanding job of editing and compression.

### **Video content brings life to ECD.**

When it comes down to it, what really gives enhanced CDs their life is video content. We include special video footage at every opportunity. Coming from a record label background, we take the appearance and sound of the videos very seriously, so we spend quite a bit of time on them. Our compression techniques have been perfected over the course of 25 projects and countless videos in those projects. When IMA compression became a cross-platform reality we were able to improve the quality of the videos considerably by dedicating more of the available data rate to video quality instead of audio.

### **Band wrote hidden song.**

We wanted to get the consumer to the Website to see what content was there and to try to get information from them that we could use to market their future releases. We knew the content had to be good enough to entice fans to seek it out, but we didn't want it to take up too much space. Pictures or text wouldn't cut it, and a full-length video was too much of a space hog. Fortunately the band was into the concept and wrote a song we used as the hidden track.

“ To hear the song, the user first must connect to the Mobb Deep Website, (possibly using their new EarthLink account), and fill out a detailed marketing survey. Then they would receive the password that would unlock the song. This was more successful than anyone had imagined, with thousands of people logging on in the first days after the record's release. ”

Lane Dunlop  
Director  
Nettmedia

## Digital Waves 500 ECD

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### Team Members

27 on the team including graphic artists, sound designers, video editors, illustrators, and programmers.

DIGITAL WAVES  
5334 Yonge Street, Suite 506  
North York, Ontario  
Canada, M2N 6V1  
Phone: 416 225-5859  
Fax: 416-225-0240  
email: dw@goodmedia.com

### Label

Digital Waves

### Artist/Title

Digital Waves Music and Multimedia CD-ROM (Compilation of music and interactive media artists)

### Description

The Digital Waves Music and interactive media CD is a mixed-mode, hybrid CD-ROM. It contains audio tracks playable on a CD player, and an interactive media session playable on both Windows and Macintosh systems. Each ECD issue promotes Canadian music artists, demos new interactive applications, reviews new products and technologies, and features articles from music and interactive media producers.

### Software used

Director, Apple Media Tool, Photoshop, Strata Studio, Illustrator, Premiere, SoundEdit 16

### Hardware used

8100s, 840avs, 6100s and various PCs, all with lots of RAM.

### Web link

Under construction.

### PRODUCTION NOTES

Paul Royes, *Digital Waves Magazine*

### Real estate always an issue.

Real estate is always an issue when you're developing an enhanced CD title. Half of our disk is reserved for music content. So an estimated 300MB are used for the audio tracks. The interactive media takes up no more than 340MB, but we had to make sure our advertisers and sponsors got enough room. Using 256 color palettes, managing RAM, and watching the use of images helps to conserve space. Reducing the amount and size of QuickTime movies is also another way to conserve space.



### **Leave room for mastering and testing.**

Make sure you build the mastering process into your timeline. Plan for many gold masters, and give yourself time for adequate testing. One hour of testing for every ten hours of production is a good guide. I like to test in a modular pattern. If you build your presentation in modules and test regularly, you'll avoid costly errors at the very end of a production. This includes burning test CDs. Remember, your title will run from a CD, not the hard drive.

### **Macintosh advantage.**

Macintosh is a much easier platform to develop on. It's got dual monitor capabilities and faster execution time. Most of the team is from the graphic design world so they're used to the Macintosh environment. But because of the market, we also make sure the product is authored and tested for both Macintosh and Windows platforms.

### **Be spontaneous.**

The software programming had to work on both platforms, so we adhered to standard technical specifications for all components. The last three days we spent testing CD cuts. We had to leave out some functionality as our deadline approached. The original main menu never made it to master because the artist didn't complete the piece in time. Beta testing on all possible configurations was also impossible with our short production schedule.

The development process was like a group jamming together and coming up with new songs on the fly. We jammed for a couple of weeks, 24- hours a day, with a band of 27 members.

### **Authoring tools.**

Macromedia Director was familiar to all members of our team. Director is also cross-platform and that's essential for us. We needed a tool that was easy to use by both graphic artists and programmers. Director was the answer. We are now looking into developing ECDs with Apple Media Tool and mTropolis.

### **Audio sessions.**

The audio side of the CD is standard 16/44. The interactive media session contains both 8/11 and 8/22 sound bytes. Using audio equalizing, gating and compression, we achieved good results. As user systems improve, we'll move to 16-bit audio on the interactive media side. IMA compression may also be implemented in our releases in 1997.

“*Macintosh is a much easier platform to develop on. [But] the software programming had to work on both platforms, so we adhered to standard technical specifications for all components.*”

Paul Royes  
*Digital Waves Magazine*

# William Shakespeare's *Romeo & Juliet* Music From The Motion Picture ECD

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## Team Members

CircumStance Design

### Directors

Tim Barber

David Bliss

### Design

Tim Barber

David Bliss

### Programming

David Bliss, Crest Modeling

Sean Brennan

### Audio Services

Protolab

### Client Liaison

Nicholas Baker-Stanton

Capitol Records

### Executive Producer

Liz Heller

### Technical Supervisor

Leo Rossi

### Project Coordinator

Jenny Cottle

Fox Interactive

### Executive Producer

Paul Provenzano

## CIRCUMSTANCE DESIGN

349A Lyon Street

San Francisco, CA 94117

Phone: 415-771-2888

Fax: 415-776-2889

www.circumstance.com

email: box@circumstance.com

## Label

Capitol Records

## Artist/Title

William Shakespeare's *Romeo & Juliet*, Music From The Motion Picture

## Description

The ECD provides a glimpse into the imagery, soundscape, and textures of *Romeo & Juliet*'s tragic love story in the current film version of the play.

## Software used

Macromedia Director, Macromedia Sound Edit 16, Adobe Photoshop, Adobe Premiere, Adobe After Effects, Adobe Illustrator, Equilibrium DeBabelizer, CD Toast 3.0

## Hardware used

Macintosh Power PCs, Dell Pentiums

## Web link: No

## PRODUCTION NOTES

Tim Barber and David Bliss, Directors

### **Romeo & Juliet's mythical world.**

TIM BARBER: Our creative goal was to extend *Romeo & Juliet*'s mythical world of Verona Beach to the computer screen. We wanted the production to convey the cultural undercurrents of *Romeo & Juliet*'s world without being specifically 'about' *Romeo & Juliet*. There was a conscious effort to avoid making the ECD a documentary on the making of the movie. Our strategic goal for the ECD was to promote the full-length CD-ROM from Fox Interactive. The ECD was easier than the CD-ROM, which contains video, full texts of the original play and the screenplay, and previously unreleased music from the score. CircumStance Design was the developer for both the CD-ROM and ECD.

The production schedule for *Romeo & Juliet* was extremely tight. We used Director because it can't be beat for quickly creating complex, graphically rich productions.



### **A different soundscape every time.**

DAVID BLISS: Much of our effort was focused on creating a soundscape that wasn't the same every time. Groups of 16-bit, 22-kHz Yellow Book loops with similar moods are selected algorithmically and randomly by the application to create a dynamic soundscape.

As an alternative to the loops, the application is capable of accessing the Red Book tracks at any time during the experience. Control of the Red Book tracks was handled by MCI calls on PCs running any Windows OS and by the Macromedia/Ion ECDCONT XObject for Macintosh OS.

### **Two weeks and a four week wait.**

TIM BARBER: We began with a two-week production schedule. Two weeks later about 95 percent of the application was complete. However, at this point the music was still being mixed in London. That meant the remaining 5 percent took another four weeks.

### **Any problems.**

DAVID BLISS: A new version of the ECDCONT XObject was required at the last minute when Macromedia's AppleCD XObject (original written for director 4.0) proved unreliable in conjunction with Director 5.0. Fortunately, we had already coded, as an experiment, the application with both XObjects.

### **Bottom-line system requirements.**

MAC: 68040/33, 2X CD-ROM-multi-session capable, 256 color display, 8MB free RAM

PC: 486/66, 2X CD-ROM-multi-session capable, 256 color display, 8MB free RAM sound card

TIM BARBER: We chose these requirements, although they are currently quite low, because they ensured a broad audience. The robust interactivity and heavily graphic nature of the *Romeo & Juliet* production required a lot of time for coding of memory management. We also used custom 8-bit palettes to get the richest color and best performance out of the minimum machines.

The only other significant adjustment for performance was that we had to limit some of the functions on faster machines. Because the gap between slow and fast machines is so great, some of the application's functions would happen much too quickly on faster machines. We had to include limiters to ensure a consistent experience from machine to machine.

“ We wanted the production to convey the cultural undercurrents of *Romeo & Juliet's* world without being specifically 'about' *Romeo & Juliet*. ”

Tim Barber  
Director  
CircumStance Design

## Galaxie 500 ECD Box Set

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### **Team members**

Rykodisc:

*Director of New Media*

Lars Murray

NDR:

*Director Programming*

Toby Mountain

*ECD Mastering/Audio Mastering*

George Kawamoto

*Video Capture and Compression*

*Director Programming*

NORTHEASTERN DIGITAL RECORDING

2 Hidden Meadow Lane

Southborough, MA 01772

Phone: 508-481-9322

Fax: 508-624-6437

email:cdndr@aol.com

### **Label**

Rykodisc

### **Artist/Title**

Galaxie 500/GALAXIE 500

### **Description**

GALAXIE 500, a four-CD box set encompasses the group's entire recorded output, including all four of the videos they made. Each of the four discs is a multisession Enhanced CD that includes a full-length QuickTime video.

The box is a commercial and aesthetic smash. The band's fan base snapped up the entire pressing within about two weeks. The videos have been extremely well-received by the customers, many of whom didn't know they existed.

### **Software used**

Macromedia Director, Toast, QuickTime

### **Web link:** No

### PRODUCTION NOTES

Lars Murray, Director of New Media, Rykodisc

### **ECD video bonus for Rykodisc customers.**

From the beginning, we've viewed ECD as a medium for bonus information for the fans, be it a Web connection, photos, extra information for fans, or, especially, video. Indies have a hard time breaking videos so they're often not seen by the fans. They really appreciate the added value of a full-length video. Rykodisc also has a very strong image among our customers, due to the care we put into choosing and packaging our artists. Providing our customers with an ECD bonus is an extension of what we do with our packages in general.

## Section Eight

Enhanced CD  
Case Studies



### **Music still first.**

We market our discs we enhance as enhanced discs, but a consumer buys a title based on the artist and the music, not the enhancement. A look at sales of CDVs (remember them?) and artist-oriented CD-ROM's should be enough to demonstrate this. The enhancement should be a bonus, like the paper badges and cut-outs that came with 'Sgt. Pepper.'

### **Hell and back.**

We have been to hell and back with our pressing plant. In many ways, unfortunately, our first disc, Sugar's *Besides*, sailed through the multisession mastering process without a hitch. Which left us unprepared as changes to the later revisions of Doug Carson software caused it to choke on some of our *Throwing Muses* and *Galaxie 500* CDRs, and worse, mess up the audio sessions on many attempts. This blind-sided our plant and us, putting us into a trial and error process that munched precious time. Luckily, NDR is extremely conscientious about QA-ing all of our audio, so nothing defective made it out into the channel.

### **Run multiple CDRs.**

My suggestion is to run off multiple CDRs, get them to the pressing plant as soon as possible and have them do a test run. Then expose them to as many ears and eyes as you can muster (especially your mastering lab), in addition to personally checking the data and audio. If you don't allow at least two extra weeks for this in your manufacturing schedule, after the content is delivered, chances are you'll be scrambling to meet your street date.

### **Multisession—the early choice.**

We went with multisession early on because we wanted to commit to a technology we thought would stick in the long run. We also thought it had the best chance at not interfering with older audio players. Computer junkies buy new computers every year. They'll catch up to multisession. But music fans expect to hold on to CD players because the standard is fixed. My 1988 Yamaha chokes on pre-gap CDs, while it plays Multisessions universally. Why should I have to buy a new audio player because the data, which is a secondary concern, plays better on my computer. My sound bite, which I repeat ad nauseam, is 'Put the music first, literally and figuratively.'

“ From the beginning, we've viewed ECD as a medium for bonus information for the fans, be it a Web connection, photos, extra information for fans, or, especially, video. ”

Lars Murray  
Director of New Media  
Rykodisc

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# Directory of Resources

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## MUSIC INDUSTRY

### Music Directories

The following music industry source books provide invaluable information on whom to call and how to reach them. Multimedia Resources begin on page 79.

#### *The Yellow Pages of Rock*

120 North Victory Blvd., Third Floor

Burbank, CA 91502

Phone: 818-955-4000

Fax: 818-955-8048

Commonly known as the “music industry bible,” the *Yellow Pages of Rock 16th Edition* features names, addresses, telephone numbers of record companies, artist management companies, talent agencies, CD manufacturing plants and other valuable industry contacts.

#### *The Recording Industry Sourcebook*

6400 Hollis Street, Suite 12

Emeryville, CA 94608

Phone: 510-653-3307

Fax: 510-653-5142

*The Recording Industry Source Book* is a comprehensive directory of record labels, producers, managers, attorneys, talent agencies and other industry contacts. Similar to *The Yellow Pages of Rock* in scope.

#### *Pollstar Contact Directories*

4333 North West Avenue

Fresno, CA 93705

Phone: 800-344-7383 (except in CA) or 209-224-2631

Fax: 209-224-2674

Record Company Rosters—Complete artist rosters and list of executive contacts for every major label. Published bi-annually.

Talent Agency Rosters—Complete listing of all major talent agencies and their artist rosters. Contains over 6,200 artists.

#### *Mix Master Directory*

6400 Hollis Street, #12

Emeryville, CA 94608

Phone: 800-233-9604

Fax: 510-653-5142

A master list for the audio industry. Includes names, addresses, and telephone numbers of recording, mastering, duplication and CD replication facilities. Also independent producers, engineers, and trade organizations.



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### Music Reference Books

The following music industry reference books give a deeper understanding of the business side of the music business, including information such as standard record royalty provisions, artist management contracts, talent agency fees and other general music industry information.

#### *All You Need to Know About the Music Business*

Donald Passman  
Simon & Schuster 1994

#### *Breakin' In—To The Music Business*

Alan H. Siegel  
Cherry Lane Books 1990

#### *Networking in the Music Industry*

Jim Clevo & Eric Olsen  
RockPress 1993

#### *More About this Business of Music, 4th Edition*

Sidney Shemel & M. William Krasilovsky  
Billboard Books 1989

#### *Music, Money and Success*

Jeffrey Brabec and Todd Brabec  
Schirmer Books 1994

#### *Sound Advice: The Musician's Guide to the Record Industry*

Wayne Wadhams  
Schirmer Books 1990

#### *The Music Address Book*

Michael Levine  
Harper Collins 1994

#### *The Music Business: Career Opportunities and Self Defense*

Dick Weisman  
Crown Publishers, Inc., 1990

#### *This Business of Music: A Practical Guide to the Music Industry*

Stanley Shemel & M. William Krasilovsky  
Billboard Books, 1990

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## Music Conferences

### Gavin Seminar

February 12–15, 1997

Hyatt Regency  
New Orleans, LA  
Phone: 415-495-1990  
Fax: 415-495-2580

The largest radio conference for the music industry.

### NARM

March 8–11, 1997

Marriott's Orlando World Center  
Orlando, FL  
Phone: 609-596-2221  
Fax: 609-596-3268

Recommended for developers who want to preview enhanced CD titles for the largest gathering of record retailers, distributors, merchandisers, and manufacturers.

### South By Southwest (SXSW) Music & Media Conference

March 12–16, 1997

Austin Convention Center  
Austin, TX  
Phone: 512-467-7979  
Fax: 512-451-0754

South By Southwest features artist showcases, industry panels and seminars, and networking over a five-day period. One of the most popular and well-attended music industry conferences.

### Musicom Europe

June 9–10, 1997

Landmark Hotel  
London, UK  
Phone: 1-800-647-7600

### North By Northeast (NXNE) Music & Media Conference

June 12–14, 1997

Toronto Hilton  
Toronto, Ontario  
Phone: 512-467-7979  
Fax: 512-451-0754

<http://m2.monsterbit.com/SXSW>

The Northeast version of South By Southwest. Features artist showcases, industry panels, seminars, and networking over a three-day period.



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## The Macintosh Music Festival

July 16–20, 1997

New York, NY

Phone: 212-339-3700

Fax: 212-339-3790

A six-day concert festival highlighting new artists and Apple technologies such as QuickTime VR. Includes an interactive showcase and performances from over 300 bands at 14 venues around New York City. A must for those who want to be a part of the music and technology convergence.

## CMJ Music Marathon

September 3–6, 1997

New York, NY

Phone: 516-466-6000

Fax: 516-466-7159

Industry conference for college music radio stations and record labels. Known for spotlighting new talent ‘waiting in the wings.’

## Musicom3

November 3–4, 1997

Beverly Hills, CA

Phone: 1-800-647-7600

## Billboard Music Video Conference

November 20–22, 1997

Beverly Hilton Hotel

Los Angeles, CA

Phone: 212-536-5002

Fax: 212-536-5055

Music video industry’s largest annual conference. Includes several multimedia panels.

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## Music Trade Organizations

### American Society of Authors, Composers and Publishers (ASCAP)

One Lincoln Plaza  
New York, NY 10023  
Phone: 212-621-6000  
Fax: 212-724-9064  
<http://www.ascap.com>

### American Society of Authors, Composers and Publishers (ASCAP)

7920 Sunset Blvd., Suite 300  
Los Angeles, CA 90046  
Phone: 213-883-1000  
Fax: 213-883-1049

### Broadcast Music, Inc. (BMI)

320 West 57th Street  
New York, NY 10019  
Phone: 212-586-2000  
Fax: 212-582-5972  
<http://www.bmi.com>

### Broadcast Music, Inc. (BMI)

8730 Sunset Blvd., 3rd Floor West  
Los Angeles, CA 90069  
Phone: 310-659-9109  
Fax: 310-657-6947

### Harry Fox Agency, Inc./National Music Publishers' Association

711 Third Avenue  
New York, N.Y. 10017  
Phone: (212) 370-5330  
Fax: (212) 953-2384  
<http://www.nmpa.org>

### National Academy of Recording Arts & Sciences (NARAS)

157 West 57th Street, Suite 902  
New York, NY 10019  
Phone: 212-245-5440  
Fax: 212-489-0394  
<http://www.grammy.com>

### National Academy of Recording Arts & Sciences (NARAS)

3402 Pico Blvd.  
Santa Monica, CA 90405  
Phone: 310-392-3777  
Fax: 310-392-2778



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National Association of Independent Record Distributors and Manufacturers  
(NAIRD)

P.O. Box 988  
Whitesburg, KY 41858  
Phone: 606-633-0946  
Fax: 606-633-1160

Recording Industry Association of America (RIAA)

1020 19th Street NW, Suite 200  
Washington, DC 20036  
Phone: 202-775-0101  
Fax: 202-775-7253  
<http://www.riaa.com>

## Music Magazines

### *Album Network*

120 North Victory Blvd., 3rd Floor  
Burbank, CA 91502  
Phone: 818-955-4000  
Fax: 818-955-8048

### *Alternative Press*

6516 Detroit Avenue, Suite 5  
Cleveland, OH 44102  
Phone: 216-631-1212  
Fax: 216-631-1016

### *BAM Magazine*

3470 Buskirk Avenue  
Pleasant Hill, CA 94523  
Phone: 510-934-3700  
Fax: 510-934-3958

### *Billboard*

1515 Broadway  
New York, NY 10036  
Phone: 212-764-7300  
Fax: 212-536-5358

### *CMJ New Music Report*

11 Middle Neck Road, Suite 400  
Great Neck, NY 11021  
Phone: 516-466-6000  
Fax: 516-466-7159

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*Hits Magazine*

14958 Ventura Blvd.  
Sherman Oaks, CA 91403  
Phone: 818-501-7900  
Fax: 818-789-0259

*Musician*

1515 Broadway, 11th Floor  
New York, NY 10036  
Phone: 212-536-5208  
Fax: 212-536-6616

*Pollstar*

4333 North West Avenue  
Fresno, CA 93705  
Phone: 209-224-2631  
Fax: 209-224-2674

*Radio & Records*

10100 Santa Monica Blvd., 5th Floor  
Los Angeles, CA 90067  
Phone: 310-553-4330  
Fax: 310-203-9763

*Rolling Stone*

1290 Avenue of the Americas 2nd Floor  
New York, NY 10104  
Phone: 212-484-1616  
Fax: 212-767-8203

*Spin Magazine*

6 West 18th Street  
New York, NY 10011  
Phone: 212-633-8200  
Fax: 212-633-2666



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## MULTIMEDIA RESOURCES

### Multimedia Directories

#### *The Carronade Multimedia Directory*

The Carronade Group  
717 South Cochran Avenue, Suite 9  
Los Angeles, CA 90036  
Phone: 213-935-7600  
Fax: 213-939-6705

A 'must-have' directory that lists and profiles major software producers, publishers, service firms and tool developers.

#### *The Entertainment Marketing Sourcebook*

EPM Communications, Inc.  
488 East 18th Street  
Brooklyn, NY 11226  
Phone: 718-469-9330  
Fax: 718-469-7124

If you're looking for contacts in the film, marketing, promotion and advertising industry, this sourcebook is for you.

#### *Multimedia Source Book*

Hi-Tech Media, Inc.  
445 Fifth Avenue, 27th Fl.  
New York, NY 10016  
Phone: 212-293-3900  
Fax: 212-293-7979  
Email: [info@multimediasource.com](mailto:info@multimediasource.com)  
<http://www.multimediasource.com>

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## Multimedia Trade Organizations

### Apple Media Program

Apple Computer, Inc.  
1 Infinite Loop, MS: 303-2D  
Cupertino, CA 95014  
Phone: 408-974-4897  
Email [DEVSUPPORT@apple.com](mailto:DEVSUPPORT@apple.com)  
<http://www.amp.apple.com>

### International Interactive Communications Society (IICS)

10160 SW Nimbus Avenue  
Portland, OR 97223  
Phone: 503-620-3604  
Fax: 503-620-7857  
<http://www.iics.org>

### Electronic Frontier Foundation (EFF)

1550 Bryant Street, Suite 725  
San Francisco, CA 94103  
Phone: 415-436-93333  
Fax: 415-436-9993  
<http://www.eff.org>

### Multimedia Development Group (MDG)

2601 Mariposa Street  
San Francisco, CA 94110  
Phone: 415-553-2300  
Fax: 415-553-2403  
<http://www.mdg.org>



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## Multimedia Trade Conferences

Milia '97

February 9–12, 1997

Palais Des Festivals

Cannes, France

NAB '97 & NAB Multimedia World

April 5–10, 1997

Las Vegas, NV

Seybold Seminars New York '97

April 21–25, 1997

Jacob K. Javits Convention Center

New York City, NY

Computer Game Developers' Conference (CGDC)

April 25–29, 1997

Santa Clara Convention Center

Santa Clara, CA

E3—Electronic Entertainment Expo '97

June 19–21, 1997

Georgia World Congress Center

Atlanta, GA

MACWORLD Expo/Boston '97

August 6–8, 1997

World Trade Center and Bayside Expo Center

Boston, MA

World Media Expo '97

September 17–20, 1997

New Orleans, LA

Seybold Seminars San Francisco '97

September 29–October 3, 1997

San Francisco, CA

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## Multimedia Internet Conferences

Internet World Canada '97  
January 7–10, 1997  
Toronto, Canada

Spring Internet World '97  
March 10–14, 1997  
Los Angeles Convention Center  
Los Angeles, CA

COMDEX Internet  
March 12–14, 1997  
San Francisco, CA

Internet@Seybold  
April 21–25, 1997  
New York City, NY

Internet World International '97  
May 20–22, 1997  
National Hall and Conference Centre, Olympia  
London, UK

Internet World Summer '97  
July 21–25, 1997  
McCormick Place  
Chicago, IL

Fall Internet World '97  
December 8–12, 1997  
Jacob K. Javits Convention Center  
New York City, NY



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## Multimedia Reference Books

### *The Interactive Music Handbook: The Definitive Guide To Enhanced CD Production, Business Development & Internet Music Strategies*

Jodi Summers

The Carronade Group 1997

360 pages, ISBN: 1-885452-08-X

U.S. \$29.95

800-529-3501 or 415-474-3500

Everything you need to know about creating enhanced CDs and online music is packed into this indispensable book. From interviews with record label executives and enhanced CD developers to a review of technical and design issues for the interactive music developer, this handbook has it all.

The Apple New Media Library has a series of informative books for the interactive music developer.

### *Desktop Video Studio*

Andrew Soderberg and Tom Hudson

329 pages, ISBN: 0-679-75784-8

U.S. \$36.00

800-793-2665

*Desktop Video Studio* focuses on the creation of digital video and is divided into three areas: A Digital Video Primer; Tricks, Tips & Techniques, and Case Studies. The book and accompanying CD-ROM provides essential background information on the creation and processing of digital video at the desktop level as well as professional step-by-step techniques for creating and producing quality content.

### *Multimedia Sound & Music Studio*

Jeff Essex

Apple New Media Library 1996

404 pages, ISBN 0-679-76191

U.S. \$45.00

800-793-2665

*Multimedia Sound & Music Studio* is the definitive resource for creating sound and music for Macintosh and Windows, answering the needs of multimedia designers and producers, musicians and audio engineers, and sales and marketing professionals seeking a better understanding of multimedia audio production. Throughout *Multimedia Sound & Music Studio* there are interviews with luminaries in the music and audio industries. The CD-ROM features sample works from many of these artists, including Laurie Anderson's *Puppet Motel*, The Resident's *Gingerbread Man* and *Bad Day on the Midway*, Brian Eno's *Headcandy*, among others. The CD-ROM also includes shareware and freeware sound utilities and clip media samples, audio system software updates from Apple, demo versions of many of the products discussed in the book, a hypertext version of the book, and tutorials that demonstrate important concepts.

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## Multimedia Magazines

### *Access*

945 Hornblend, Suite G  
San Diego, CA 92109  
Phone: 619-270-2054  
Fax: 619-270-2159

### *Daily Spectrum*

1609 Addison Street, #6  
Berkeley, CA 94703  
Phone: 510-549-2894  
Email: duberman@dnai.com

### *Electronic Musician*

PO Box 41525  
Nashville, TN 37204  
Phone: 800-888-5139  
Fax: 615-377-0525

### *Interactive Week*

100 Quentin Roosevelt Blvd.  
Suite 508  
Garden City, NY 11530  
Phone: 516-229-3700  
Fax: 516-229-3777

### *InterActivity*

411 Borel Avenue, Suite 100  
San Mateo, CA 94402  
Phone: 415-358-9500  
Fax: 415-655-4360

### *Keyboard*

411 Borel Avenue, Suite 100  
San Mateo, CA 94402  
Phone: 415-358-9500  
Fax: 415-358-9527

### *MacWorld*

501 Second Street  
San Francisco, CA 94107  
Phone: 415-243-0505  
Fax: 415-442-0766

### *Mondo 2000*

PO Box 10171  
Berkeley, CA 94709  
Phone: 510-845-9018  
Fax: 510-649-9630

### *Multimedia World*

501 Second Street, Suite 600  
San Francisco, CA 94107  
Phone: 415-281-8650  
Fax: 415-281-3915

### *Music and Computers*

411 Borel Avenue, Suite 100  
San Mateo, CA 94402  
Phone: 415-358-9527  
Fax: 415-358-9527

### *Wired*

520 Third Street, 4th Floor  
San Francisco, CA 94107  
Phone: 415-222-6200  
Fax: 415-222-6209



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## Enhanced CD Pressing Plants

Almost all plants listed accept CD-R discs in multisession and pre-gap formats. Check to see what other formats are accepted, such as Exabyte 8 millimeter tapes, 4 millimeter DAT tapes, and removable hard drives. Factors affecting cost will be turn-around time, quantity of discs, complexity of artwork, and type of packaging. Request test discs from the manufacturer to confirm the finished disc replicates the original master.

### EMI Manufacturing (USA)

1 Capitol Way  
Jacksonville, IL 62650  
Phone: 217-243-5162  
Fax: 217-243-1215  
Technical Contact: Keith Thomas  
Sales Contact: Tom Peterson

### WEA Manufacturing Specialty Records

1444 East Lackawanna Avenue  
Olyphant, PA 18447  
Phone: 717-383-3291  
Fax: 717-383-3496  
Technical Contact: Jerry Warnero  
WEA Marketing and Sales-East Coast: 212-399-8831  
WEA Marketing and Sales-West Coast: 818-953-2941  
WEA Manufacturing replicates audio compact discs, CD-ROMs, multimedia optical discs, video cassette tapes, audio cassette tapes, and vinyl records.

### Nimbus Records Inc.

PO Box 7427  
Charlottesville, VA 22906  
Phone: 800-782-0778  
Fax: 804-985-4692  
CompuServe: GO NIMBUS  
Technical Contact: Randy Robinson  
Sales Contact: Joe Cannariato  
Nimbus offers pre-gap and multisession replication in addition to full-service CD-ROM production capabilities.

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Disc Manufacturing Inc. (DMI)

4905 Mooresmill Road  
Huntsville, AL 35811 or  
3400 East LaPalma Avenue  
Anaheim, CA 92806  
Phone: 800-433-3472  
Fax: 302-479-2527

Request sales by your region

Audio East Sales: 212-599-5300

Audio West Sales: 818-953-7790

DMI currently manufacturers pre-gap and multisession format enhanced CDs.

DMI is the largest independent manufacturer of CD formats and provides technical support, consultation, fulfillment and drop shipment services.

KAO Optical Products

800 Corporate Way  
Fremont, CA 94539  
Phone: 800-288-4526  
Fax: 510-657-8427

Technical: Scott Ketteler

Sales: Ron Silzer

KAO currently manufacturers CDs in the CD-ROM ready (pre-gap) and multi-session formats as well as all other compact disc formats. KAO has multiple pressing plants and offers worldwide fulfillment and distribution services.

Sony Music Entertainment

400 North Woodbury Road  
Pittman, NJ 08071  
Phone: 609-589-8000  
Fax: 609-589-3007



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## Testing Houses

### PCTest Corp.

8625 S.W. Cascade Suite 441  
Beaverton, OR 97008  
Phone: 503-646-2852  
Fax: 503-646-2852  
<http://www.pctest.com>

### XXCAL Corp.

11500 W. Olympic Blvd. Suite 325  
Los Angeles, CA 90064  
Phone: 310-477-2902  
Fax: 310-477-7127  
<http://www.xxcal.com>

### Multimedia Services

1657 Euclid Ave.  
Santa Monica, CA 90404  
Phone: 310- 581-5800  
Fax: 310- 581-5899

### The Center for Software Development

111 W. St. John, Suite 200  
San Jose, CA 95113  
Phone: 408- 494-8302  
Fax: 408-494-8383  
email: [sandy@center.org](mailto:sandy@center.org).

# Glossary

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## Apple Media Program (AMP)

The interactive media developer's source for technology, tools, and marketing resources.

## Audio and Video Digitizing Software

Applications commonly used to convert audio and/or video for use on a computer (e.g., ProTools–audio; VideoShop–video).

## Authoring Tool

Software used to program interactive media presentations (e.g., Apple Media Tool).

## Back Catalog

A series of recordings released by an artist over a given time frame in the history of the artist. Usually refers to titles issued prior to the current release.

## Bit Binary (zero and one) values

The smallest piece of data recognizable to a computer.

## Blue Book

The document which specifies the Blue Book format as defined by Sony and Philips.

## Burner Device

Used to make a “one-off” gold CD-R (e.g., “burning a disc”). Used with disc-burning software (Toast).

## Buzz Bin

Name of show on MTV showcasing popular, up-and-coming recording artists.

## C Code

Used to describe high-level programming language.

## Codec

Software that allows the compression and decompression of audio and/or video. Usually included with the extension for playback (e.g., Cinepak is part of QuickTime).

## Catalog

Describes a group, or body, of recordings or musical copyrights by one common owner or author.

## CD EXTRA

Name used by Sony and Philips for type of enhanced CDs using stamped multi-session technology.



### CD-ROM

A format for storing computer data or compressed audio and video data on a compact disc in a digital format. Also used to refer to CDs containing multimedia data to be played back on the CD-ROM drive of your computer.

### Enhanced CD

Term generally used to describe an audio compact disc that also includes multimedia data. The disc can be played on both audio CD and CD-ROM players attached to a computer. Enhanced CD is sometimes referred to as a CD EXTRA, mixed-mode, pre-gap, or hybrid disc.

### Enhanced CD Database

Apple Website that provides information on enhanced CD along with a wide selection of enhanced CDs and search function.

### Extensions

A name for add-on software that extends the functionality of the system software (e.g., QuickTime).

### Fps (Frames per second)

A frame is a single unit of media data. Usually refers to the number of frames of QuickTime video shown in one second. In NTSC video, a frame is a measure of the two fields that make up 1/30th of a second.

### Gold Master

A CD "one-off" made using CD-R blank discs. Master means it is the CD used for replication.

### Hybrid CD

An ECD or CD-ROM that plays on Macintosh and Windows and connects to the Internet. The connection could be an Internet link, a homepage, a chat space or an interactive multiplayer game.

### IMT (Interactive Music Track)

A subsection of the Apple Media Program providing the latest technology, tools, and information to recording artists, record labels and interactive music developers.

### ISP (Internet Service Provider)

A company that provides access to the Internet usually by using a telephone dial-up connection.

### Kbytes or Kilobytes

A unit of computer memory equal to 1,024 bytes.

### kHz or Kilohertz

A unit of frequency used to measure sound. 63 Kps (Kbytes per second) Usually refers to transfer rate of data.

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### Liner Notes

The printed text or copy, on the back or inside of albums, cassettes, and CDs. Used primarily for album credits and additional commentary provided by artist, record label or other sources.

### Megabyte (MB)

A unit of computer memory equal to about a million bytes.

### Mixed Mode

Describes type of enhanced CD where Red Book audio and CD-ROM data share space on the same compact disc. Generally requires audio CD user to manually skip over CD-ROM data which is in the first track of disc.

### Multisession Driver

Software extension which allows a CD-ROM driver to properly read multi-session compatible compact discs such as CD EXTRA.

### Operating System (OS)

The software in a computer that contains general instructions to manage processes, memory, communications and other system level responsibilities.

### Philips

One of the two hardware manufacturers, with Sony, that jointly developed the original patent for the 'Red Book' audio CD, 'Yellow Book' CD-ROM and new 'Blue Book' enhanced CD specification.

### Platform

A computer that uses a specific operating system (e.g., Macintosh platform represents all computers running MacOS).

### Platinum

As in 'platinum record', representing over a million unit sales by a particular artist or group, as determined and certified by the RIAA.

### Pre-Gap

Type of enhanced CD which places CD-ROM data in the pre-gap area of the compact disc between index point 0 and index point 1. Allows disc to play Red Book audio from track one.

### QuickTime

The stuff multimedia is made of. Apple's multimedia standard makes it possible for users to view and edit video, music, text, animations and other dynamic information on their computers.

### QuickTime Continuum

Website established by Apple Computer allowing consumers to obtain information on QuickTime software such as QuickTime 2.0 and QuickTime VR.

**QuickTime Music Toolkit**

Suite of interactive music tools from Apple Computer used to develop enhanced CDs that follow Blue Book standard as specified by Sony and Philips.

**QuickTime VR**

Apple's new technology for creating 360-degree Virtual Reality (VR) panoramas, or navigable objects, on your computer without any specialized hardware, software, or accessories.

**RAM (Random Access Memory)**

Describes principle memory used by a computer in which data and instructions are momentarily used.

**Red Book**

The document which specifies the audio CD format developed by Sony and Philips.

**RIAA (Recording Industry Association of America)**

The main trade organization representing the record industry and music retailers of America.

**Run-Time (or executable, projector)**

Various names for self-contained software created by authoring tool for distribution.

**Sony**

One of the two hardware manufacturers, with Philips, that jointly developed the original patent for the 'Red Book' audio CD, 'Yellow Book' CD-ROM and new 'Blue Book' enhanced CD specification.

**Stamped Multisession**

Describes compact discs on which data can be recorded on more than one occasion. CD EXTRA uses stamped multisession technology to combine audio and CD-ROM data on the same compact disc.

**Xtras, XObjects, XCMDs**

Various names for add-on software that extends the functionality of the authoring tool and/or executable. Used for Audio CD control, QuickTime VR, and other new technologies.

**Yellow Book**

The document which specifies the CD-ROM format developed by Sony and Philips.

## About The Author

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Josh Warner is founder of Blink Media, a consulting firm for the music and technology industry with clients that include Apple Computer, Virgin Records, Motown Records and Westwood One Radio Network.

Warner is author of *The Enhanced CD Fact Book* and has written on the entertainment and software industry for *The Hollywood Reporter* and *Billboard Magazine*.

Warner held marketing posts at DDB Needham Worldwide and the Marketing Entertainment Group of America, one of the first firms to secure sponsorships for recording artists such as The Beach Boys, The Who and Duran Duran.

Warner is a requested speaker at entertainment and technology conferences and is a graduate of Boston University's School of Public Communication.