SAFEDISC™

Product Description

Macrovision's SafeDisc solution allows publishers to protect their CD-ROMs from unauthorized replication or copying. Effective against both consumer copying and professional pirates, SAFEDISC prevents the use of CD-Recordable drives and commercial devices to make useable copies of CD-ROMs.

SafeDisc incorporates a unique authentication technology that prevents the re-mastering of CD--ROM titles and deters attempts to make unauthorized copies. The SafeDisc authentication process ensures that consumers will only be able to play original discs. The user is forced to purchase a legitimate copy. SafeDisc further thwarts attempts to obtain unauthorized copies downloaded via the Internet.

SafeDisc Is Designed To:

➤ Prevent CD-ROM based software from being stolen by copying to either a hard disk, burning a "Gold" CD using a CD writer, or professional re-mastering from a silver CD.

➤ Use the CD as a 'key disk' so the original CD must be present in the drive for the software to run.

SafeDisc Is:

➤ Effective against piracy,

➤ Compatible with consumer hardware configurations, and

➤ Transparent to the legitimate user.

The SafeDisc technology is comprised of three key features:

(1)   A digital signature,
(2)   An encrypted wrapper protecting the content including authentication instructions, and
(3)   Anti-hacking software.

Benefits:

➤ Protects against unauthorized consumer copying of software sold through retail channels.
➤ Thwarts use of CD-record able drives, re-mastering by professional pirates, and Internet downloads.

- ➤ Effective against piracy, compatible with consumer hardware configurations, and transparent to the consumer.

- ➤ Boosts revenues, discourages copying, and opens new markets.

- ➤ Increases purchases by retailers of copy protected titles and reduces store returns.

- ➤ Compatible with normal premastering, mastering, and replications processes.

- ➤ Supported by the leading professional CD mastering software application (DCA) used by CD-ROM replicators.

- ➤ Supported by all the leading data verification and physical disc testing Quality Assurance applications used by CD-ROM replicators.

How Does SafeDisc Work?

During premastering, the program executable is encrypted and carries with it authentication instructions. A unique SafeDisc digital signature is subsequently added to the title during mastering. When a user plays an original disc, the authentication software reads the digital signature, thus allowing the program to be decrypted and to play normally. The signature cannot be copied by CD-recordable drives or by professional mastering equipment.

The original CD must be present in the CD-ROM drive to allow the authentication to occur. The authentication process is transparent to the user. When an unauthorized copy is played back, the absence of the signature will prevent decryption of the program and the copy will not play.
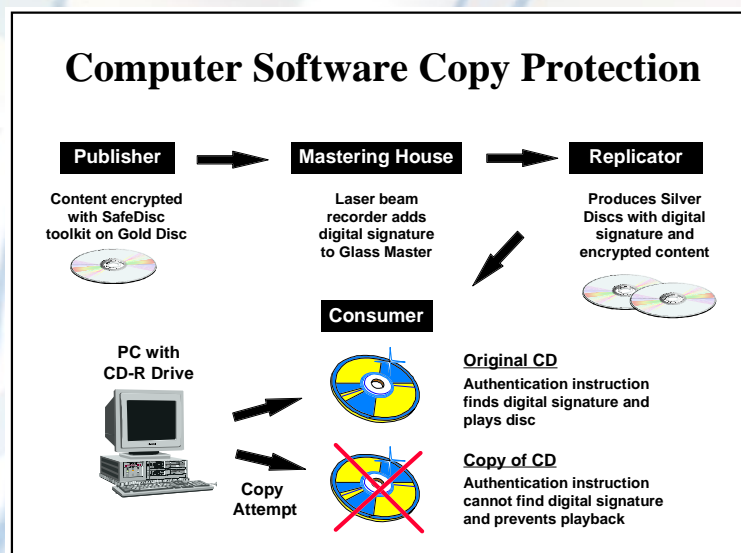
SafeDisc also includes anti-hacking technology that prevents the compromise of its security features. The anti-hacking technology is designed to not only deter casual copying, but also to stop destructive hackers and commercial pirates.

Applying SafeDisc To Normal Mastering and Replication Processes

SafeDisc is designed to work with the standard mastering and replication process. The publisher's content is transferred to the Gold Disc in the usual manner.

Our patented digital signature is added to the Glass Master using a Laser Beam Recorder (LBR). This requires Mastering Interface Software 6.2 (MIS) or above, provided by Doug Carson Associates (DCA). DCA is the leading mastering software supplier in the market today.

Test keys are provided to allow normal quality control processes using standard data verification software. CD Silvers are manufactured using the standard replication procedures. The illustration to the right shows how the technology is applied.

Computer Software Copy Protection

Publisher	Mastering House	Replicator
Content encrypted with SafeDisc toolkit on Gold Disc	Laser beam recorder adds digital signature to Glass Master	Produces Silver Discs with digital signature and encrypted content

Consumer

PC with CD-R Drive

Original CD
Authentication instruction finds digital signature and plays disc

Copy Attempt

Copy of CD
Authentication instruction cannot find digital signature and prevents playback

SafeDisc is an 'open' system. It is available to all mastering facilities and replicators using DCA mastering control software (which comprises approximately 70% of facilities worldwide) and data verification and physical test QA applications from DCA, Eclipse, CD Associates, CD Cats (Audio Development), and Koch Media. Publishers need maximum flexibility in scheduling their production. Macrovision offers mastering and replication facilities a convenient software upgrade and licensing program that allows the SafeDisc process to be installed quickly.

The Encryption Process

Publishers complete both a test build and release build process when encrypting their programs. The test build allows publishers to ensure that the encryption process functions properly with the title. In the release build, the final unique encryption key is added to the application.

Test Build

1. Product developed normally and passes Gold Disc QA.
2. Executable files are encrypted using the SafeDisc Encryption Toolkit.
3. Toolkit produces a single ISO 9660 Image File.
4. Product is tested using SafeDisc Development Key Disc.

Release Build

1. Product is re-encrypted using a unique License Number supplied by Macrovision for each title.
2. Image File is sent to Mastering Facility via Gold Disc, magnetic tape or electronically.

The Authentication Process

The SafeDisc Authentication Process involves adding a unique digital signature to a title during mastering. It also allows for normal quality assurance checks during replication.

Mastering

Doug Carson Associates (DCA) Mastering Interface Software (MIS) automatically reads the SafeDisc prepared Gold Disc and adds a unique SafeDisc digital signature to the Glass Master via a Laser Beam Recorder (LBR).

Replicator

The replicator manufactures the required quantity of CD-ROMs using standard replication procedures and performs normal signal and data verification testing.

Compatibility with Mastering and Replication Processes

The SafeDisc technology is available to all mastering and replication facilities and is designed to work with normal mastering and replication processes. SafeDisc offers publishers the flexibility to have their titles mastered and replicated at different facilities – SafeDisc stampers can be sent to any SafeDisc authorized replicators. Over 75 facilities worldwide are currently authorized to provide SafeDisc encrypted discs. Visit our Website at www.macrovision.com for an updated list of authorized mastering and replicating facilities.

Technical Specifications

Toolkit platforms supported:	MS Win95, Win98
End User platforms supported:	MS Win95, Win98, WinNT and Win2000 when released
Software applications:	All applications must be Windows 32 bit.
Memory requirements:	SafeDisc requires 64kbytes for Win 32 bit application. (There is no requirement for expanded or extended memory)
Hardware platforms supported:	Any IBM compatible PC
Disk Space Requirements:	22 Mbytes required
Compatible CD-ROM drives and interfaces:	IDE Atapi, EIDE Atapi, SCSI, parallel port and most proprietary interfaces.

Licensing and Contact Information

Visit www.macrovision.com or www.safedisc.com

For Information Worldwide, Contact:

(US & Canada) 1-800-900-4229

(UK & Europe) +44 (0)118-969-1111

(Japan & Asia) +81 (0)3-5378-7212

or email: safedisc@macrovision.com.

Worldwide Authorized Resellers and Replication Facilities

The list of Authorized Resellers and Certified Replication Facilities is available on www.macrovision.com or www.safedisc.com.

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