



MediaSoft International

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## CD-COPS: Software copy protection for CD-ROMs

The software industry loses enormous sums of money each year due to rampant software piracy. Several attempts have been made to develop protection systems capable of fighting piracy, but at the end of the day it turned out to be just promises and hopeful expectations! The software market reality proved that fighting piracy takes more than just inspired marketing and expensive promotional activities.

Today, all these seem to be part of the past; a pioneering breakthrough in copy protection technology has been released: the "CD-COPS II" total antipiracy solution for CD-ROMs.

CD-COPS recognizes the original disc and thereby rejects all illegal copies that were produced on a CD-R burner, or by "professional pirates" expertly using illegal glass-masters. Minute differences are scanned and measured to establish the disc's fingerprint and to ensure that illegal copies are not accepted. This fingerprint is expressed as an access code, or unique key number. The software utility which identifies, recognizes and either accepts, or rejects the CD-ROM, is itself protected by "Code Security", a system that has been in use since 1984 and is well-known throughout the world, as being virtually unbreakable. Code Security is a legend in the Middle East where piracy is a very serious problem.

CD-COPS protection does not rely on special mastering, or manufacturing process; no special equipment is necessary. Therefore, any pressing factory can produce CD-COPS protected discs. The only actual restriction for the manufacturing proceedings is the strict compliance to the quality rules and standards contained in the Yellow Book, issued by Philips. Other protection systems base their operation on special glass-mastering that can be performed only in a very few selected factories, and always under extremely high prices. At the same time, the mastering procedure followed is not compliant to the Philips standards, resulting to CD production that is certainly accomplished not according to the Yellow Book specifications. The initial idea was to embed physical marks that only the protection code could realize, and therefore, burning utilities wouldn't be able to copy original discs. Today's market reality shows that this kind of conception has created enormous operation compatibility problems. Hackers have totally realized the technique and have released several generic cracks in the Internet. Additionally, several advanced burning utilities, such as CloneCD, can easily copy original discs protected by those systems!

CD-COPS relies on state-of-the-art encryption techniques and encoding algorithms that give zero chance to hacking attempts. CD-R burning utilities cannot copy CD-COPS protected discs and produce workable copies on a large scale. Pirate re-mastering is also out of the question! That explains why CD-COPS generic cracks cannot be found on the Internet, as it is simply impossible to be created!

CD-COPS supports all commonly used operating systems, such as: DOS, Windows 3.x, 9x, NT, ME, 2000, XP and OS2. Additionally, all currently available CD-ROM speeds are supported.

CD-COPS can be applied on all formats of silver discs (CD, Mini-CD, Card-CD, hybrid, mixed mode, etc.) and it may be used either as a shell protection (Wizard option), or as an API protection (API option). Both options use the very same digital encryption algorithms and most advanced encoding techniques, but on a different operational basis:

- The Wizard option uses an automated wrapper software utility to apply the system in a very simple and fast manner, as a shell (envelope) protection to the software product.
- The API option allows implementation of the system functions and integrated code commands directly into the application's source code, by the use of various specific programming routines and modules, according to the specific programming and security needs of each software product.
- In addition, a combination of the two options, called the GameAPI option, could be used, consisting of object modules that also check the CD-ROM. Then, developers can have both shell (envelope) protection and additional checks of the CD-ROM, on selected spots. One more advantage of this method is that these checks can be done much later, or a number of days after installation of the software application, then even in case that a hacker goes through the whole game, he will not find the "mines" that come later.



For CD-COPS to be implemented into a developer's application, a most dedicated Software Developer's Kit (SDK) is engineered and developed, uniquely for each and any developer, to be used only for the protection of its own software products. This way, maximum anti-piracy security is achieved, and developer's software products get a unique electronic stamp, with its own firm digital encryption algorithm and identification signature. Therefore, one SDK is designed for each and any developer, resulting to unique anti-piracy encryption and software encoding for each customer.

During the system implementation, it is possible that a few minor changes could be made to the installation script. Finally, the gold master CD-R with the protected application is created and tested.

All protected CD-ROMs produced out of the same glass-master, no matter how many stampers have been used, are identical and the special software utility contained in the SDK, shall measure one of the CD-ROMs to extract the exact matching access code needed for the protected application to run. The code is entirely public, not confidential, and should be included with the CD-ROM as a label sticker, enclosed in the packaging, or printed onto the disc's surface.

Actually, the measure-utility can generate three (3) types of codes: the normal code, the strong code, and the relax code. Each software developer and publisher must decide which code to use prior releasing the software product in the market; the code is entirely public, not confidential, and should be included with the CD-ROM as a label sticker, enclosed in the packaging, or printed onto the disc's surface.

- Software developers and publishers most commonly use the normal code that provides very high level of protection and security, combined to top compatibility with most of the existing CD-ROM drives.
- On the other hand, the strong code provides extremely high level of protection and security, dealing very effectively with CD-R illegal copies that were randomly and accidentally capable of running. Nevertheless, it is possible for some end-users to face compatibility problems with low-quality CD-ROM drives; in this case, the normal code could be given to overcome the problem.
- In case that an end-user is facing serious compatibility problems with the PC configuration that he is using, the relax code can resolve the problem by locking the protected application to the specific PC only. This way, the presence of the original disc in the local drive is not needed, and at the same time, the application may run only on that specific PC.

During installation of the software, the end-user has to enter the access code. This is done only once, and from then on, the software shall run only when the original CD-ROM is inserted in the local CD-ROM drive. The data can reside either on the CD-ROM, or on the hard disk drive, but the original CD-ROM must always be present in the drive. If a pirate disc is inserted into the drive, the software will refuse running.

Unlike other competitive systems, CD-COPS is the only software copy protection system that could fight piracy in critical areas, such as China, Middle East, etc., for years now, under the most effective way. Bear in mind that in such areas, pirates are not the only enemy; operating under low-quality PC configurations and out-of-standards CD-ROM drives that cause enormous compatibility problems, is the most tough problem to deal with! And that is because having a crack or so is something that software publishers can accept, but having unsatisfied end-customers who paid for the product and it simply doesn't run, is something that no developer or publisher can tolerate.

CD-COPS has made it with flying colors! The system is definitely the ultimate software copy protection solution that can guard software content in the most effective manner!

Concluding, some of the most important induced benefits of CD-COPS are:

- CD-R copying utilities cannot copy CD-COPS protected CDs
- Normal CD production and verification
- In-house implementation and testing
- Game-API option enables special coding
- Prevents separation from guard module
- High security level; no generic cracks on the Internet
- Market leader in critical areas (China & Middle East)
- Network version, time-expiry and periodical checks
- Works with parallel port and DOS assigned CD drives, and removable drives on portables PCs

## CD-COPS benefits compared to other copy protection systems

- Low incompatibility level** With CD-COPS the actual needs for end-user technical support are very low. Only a very small and minor percentage of end-users might call your support line. But even at this case, CD-COPS provides you the "Rescue Utility", which generates special access codes to bypass specific, individual and hard to deal with compatibility problems.
- High protection level** CD-COPS was initially developed in 1984 as a truly pioneering and patented technology. Ever since, continuous improvement keeps the technology a step beyond hackers, as well as the competition itself. A most dedicated and active team of highly trained and experienced professionals carry this task resulting to probably the most secure industrial copy protection system available today.
- Ease of implementation and pre-manufacturing test** CD-COPS provides you with the needed protection kit and instructive documentation to enable you implementing the technology in-house, by your own means, human and material resources. At the same time, extensive testing can be performed prior to any large-scale manufacturing process to ensure the correctness and completeness of your implementation job.
- Normal disc production** CD-COPS is fully compliant to the Philip's "Yellow Book" standards and quality restrictions for CD-ROM production. Therefore, any CD Factory can produce CD-COPS protected discs without the need of any additional equipment or following special proceedings.
- Wide range of software protection systems** CD-COPS is the fundamental platform and basis of a wide range of technologies capable of providing effective solutions to most protection, security and policing needs. Various technologies are ready to meet your requirements, such as DVD-COPS for copy protection of DVD-ROMs, Web-COPS for secure online digital rights management, html-COPS for secure distribution of webpages, PDF-COPS for copy protection and access control of PDF files, etc.
- Quality of service** MediaSoft and its worldwide partners and associates, are well known for the excellent quality of service provided to customers. Custom tailored solutions are frequently developed to advance and modify the existing technologies for your most bizarre security needs to be met.

## System implementation done by customer

- Customer uses the SDK to implement CD-COPS into its software product. Extensive testing should follow to ensure that the implementation proceedings have been accomplished properly.
- Customer sends to CD-factory the protected gold master CD-R for mass replication. CD-factory carries out mastering and replication, and the silver CD-ROMs are finally produced. Sample discs should be thoroughly checked and measured by customer, or MediaSoft to calculate the exact access code needed for the protected product to run.
- MediaSoft charges customer the royalty per protected CD-ROM produced, payable upon notification that production has been concluded.

## System implementation done by MediaSoft

- Customer sends to MediaSoft two (2) gold master CD-R copies of the software product to be protected, along with the CD-COPS Technical Form 1 and Order Form 2.
- MediaSoft uses customer's SDK to implement CD-COPS into the software product. Extensive testing follows to ensure that implementation has been accomplished properly.
- The protected gold master CD-R is sent to the CD-factory stipulated by Customer, to carry out mastering and replication for the silver CD-ROMs to be finally produced.
- Sample silver discs are sent to MediaSoft to be thoroughly checked and measured to calculate the exact access code needed for the protected product to run without problems, under maximum security.
- MediaSoft charges Customer the royalty fee per disc produced, and the implementation fee per title processed, both payable upon disc replication completion.



## References

The customer reference list of CD-COPS is rather long, including some pretty important firm-names of the worldwide software industry, such as Oxford University, Cognos, Syracuse Language Systems, Microsoft, Bonnier, Meteksan, Cambridge University, Lademanns, DeAgostini, Brockhaus, MacMillan, Compedia, Sebit, Sakhr, CyberStone, Springer, etc.

## About MediaSoft International

MediaSoft International is a cutting edge creative, innovative company specializing in Information & Communication Technology Systems & Services.

Our headquarters are based in Thessaloniki and the collaborating optical disc production plant in Northern Hellas (Greece). Laboratories and affiliated premises are located all over the world.

As a result of our strategic collaboration with Sanyo Holding we have become a major software fulfillment center in the Mediterranean area and are able to offer a wide gamut of high quality products and services.

Our marketing policy is based on three values: "Product Reliability", "Quality of Service", and "Customer Satisfaction". This focus has allowed us not only to achieve high performance in the areas of human and material resources, but also excellent results: a complete range of high technology products and services for the European, Middle East, and Asian markets.

Our Products and Services list comprises:

- Software Copy Protection,
- Software Security,
- Digital Rights Management (DRM),
- Optical Disc Manufacturing, and
- Internet Advanced Services.

In order to serve our customers in the most cost effective and competitive way, we have established sales offices and local fulfillment centers throughout the Near and Middle East: Istanbul (Turkey), Beirut (Lebanon), Damascus (Syria), Jeddah (Saudi Arabia), and Teheran (Iran). Further expansion is underway in the Far East: Seoul (Korea), Hong Kong, Singapore and Tokyo (Japan).

The company's main business objective is to become a "One-Stop Shop" for a wide range of services related to the software industry. We also have an eye for business opportunities in the ever-evolving software industry and the explosion of demand for Internet services, through research and monitoring of the market.