

# Smart-Card Operating System with DRM Module

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## Smart-Card Operating System Overview

Smart-cards usually provide a defined set and a fixed number of non-changeable crypto-services. Syncrosoft's smart-card operating system breaks this restriction. The Syncrosoft's operating system executes encrypted programs that carry out arbitrary crypto-services. And the operating system comes with an integrated digital rights management module that controls the usage of these crypto-services.

## Execution of Encrypted Programs

The Syncrosoft smart-card operating system uses a virtual machine to execute arbitrary programs that are encrypted.

These programs carry out crypto-services and can be uploaded from a host computer to the smart-card dynamically at runtime. Using a virtual machine for program execution has the advantage that the encrypted programs are independent from the hardware type they are executed on. The programs can be executed on any type of security device that operates Syncrosoft's smart-card operating system.

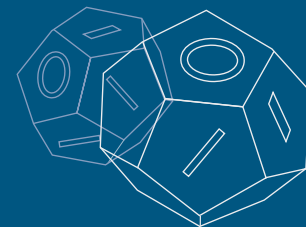
## Digital Rights Management Module

The smart-card operating system provides a flexible DRM module. In general, a crypto-service can be linked to a license that is stored in the smart-card's permanent memory. The presence of a license permits the execution of a crypto-service. A license model, which is part of the DRM module, defines different license types and license limitations. For instance, a license can be of the type "full version" or "demo version". License limitations restrict the usage time of a license, e.g. "20 program starts until expiration" or "license expires at 20.10.2008". The license model can be easily extended, updated or changed because the DRM module is implemented as a crypto-service.

## Object-Oriented Execution Environment

The smart-card operating system implements an object-oriented execution environment. That means, the encrypted programs are designed and implemented as "objects". The program code and the program data of an object are encapsulated. During execution, several instances of objects may exist in the smart-card's memory at the same time. The encapsulation of program code and the program data ensures that objects exist simultaneously without security payoff, because each object has its own shielded address space.

# Smart-Card Operating System with DRM Module



## Key Features

Syncrosoft's smart-card operating system offers the following key features:

- **Execution of arbitrary Programs.** A virtual machine executes encrypted programs. The programs can implement arbitrary crypto-services.
- **Hardware Independent.** The encrypted programs are independent from the smart-card hardware type; they could be executed on any type of smart-card that runs the virtual machine.
- **Object-Oriented Programs.** The encrypted programs are designed and implemented in an object-oriented way. Objects have its own shielded address space.
- **DRM Module.** The smart-card operating system includes a DRM module. The DRM module implements a flexible license model.
- **Crypto-Service requires License.** A crypto-service can be linked to a license stored in the smart-cards permanent memory.
- **Transfer of licenses.** The smart-card operating system supports the transfer of licenses between smart-cards.
- **Standard Algorithm Support.** The smart-card operating system includes modules that support standard crypto-algorithms like AES, DES, 3DES, RSA and SHA1.
- **Copy Protection.** Crypto-services include algorithms specifically designed for software copy protection and content protection.
- **Authentication Service.** An authentication crypto-service provides an easy way to identify legitimate end-users and software applications.
- **Emulation of Security Hardware.** Crypto-services might implement a full feature emulation of other hardware security devices, like dongles, security tokens or smart-cards.

## Syncrosoft – The Company

**Syncrosoft**, founded in Hamburg/ Germany in 1991, develops and markets superior crypto and security solutions used for IP- and software copy-protection. Syncrosoft supplies its patented technologies and security solutions to customers in the software, digital content and security solutions industry in Europe, USA and Japan.

Syncrosoft does invest into research in the area of crypto and security solutions and continues to add to a patent portfolio that helps differentiate its products, which is important to Syncrosoft's license driven business model.

With offices in Hamburg/Germany and Riga/Latvia, Syncrosoft is a European company.

### MOST IMPORTANT FACTS

- **The operating system's crypto-services are hardware independent because they are executed on a virtual machine.**
- **The operating system includes a DRM module with a flexible license model.**

Find detailed information at [www.syncrosoft.com](http://www.syncrosoft.com)