OpenMobileAPI

Smart card File Management

One of smart card’s characteristics is data storage media. But in contrast with other storage device, the most distinguishing feature of smart card file system is that, there exists no man-machine interface\cite{handbuch}, which means all files are addressed with help of hexadecimal codes and every single file process command is strictly based on this shema.

\paragraph{File Structure}

As pictured in figure xxxx(caption the internal structure of a file in smart card file management system), files on smart card consist of two parts, the header, which encapsulates administrative information such as, file structure and access conditions, the body, that stores real user data and is linked with file header using a pointer. This file management mechanism has its own advantage. To be more specifically, since file header and body are separately located, therefore even write/read error occurs in file body, file header, which is under normal circumstances never altered and saves essential access conditions, won’t be affected, which in return provides better physical storage security.

\paragraph{File Types}

According to ISO/IEC 7816-4 speciation, smart card offers two major file types, dedicated file (DF) and elementary file (EF). DF is also described as directory file, which contains lower-level DFs and EFs. And in EF, real user data is stored. Moreover there is a special DF, called master file (MF), which represents root directory of smart card file system and only selected by smart card OS. Figure illustrates one possible architecture of smart card file system.

PKSC#15

Apart from normal user data storage mechanism, another issue of concern is how to secure store cryptographic information on smart card. The PKCS#15 (Public key cryptography standards) specification, which was proposed by RSA Inc. and is nowadays worldwide accept, provide standards

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