

FILEPRO: FILE PROTECTION ON FILE SERVERS USING LINUX KERNEL MODULE

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ABSTRACT

Most operating systems have protection mechanisms that prevent unauthorized disclosure and enforce integrity at a file level. Linux operating system and its variants contain several native protection mechanisms that enforce file access policy. These controls include file access permissions, users' grouping and access control lists.

In many situations, we may need to allow a user to prohibit his file(s) from all system users including super users (not root user) and some users within the file(s) group, while allowing specific group user(s) to access the file(s). Such a situation can not be achieved by using the existing file access controls provided in Linux operating systems such as ACL.

In this paper, we provide a file access mechanism called "FILEPRO", a loadable Kernel module that allows users to protect their own files from super users and some group users, while granting an access level to certain group members. In Linux-based systems, Kernel source consists of modules that are enhanced to release new versions of the operating systems. FILEPRO can be one of those modules, which can be deployed into new Kernel's releases.

KEYWORDS: File Protection, Loadable Kernel Module, Access Control List, Super Users