

## Formally Specifying Linux Production

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### *Abstract*

Authorization and protection deal with the problem of the control of access to resources. A key aspect of modern computing systems is resource sharing, so a need arose to govern access to these resources only to authorized users. In multi-user operating systems (such as Linux) authorization is of great interest. Computer security and authorization as a subset is characterized by the fact that a security fault or hole can be very costly. It is of great interest therefore to formalize and reason about security. Z notation is a powerful well-known formal notation based on set theory and predicate calculus which provides both abstraction and formalism. This work reports a formal expression in the Z notation for the basic protection (authorization) system of the Linux operating system.