Firewalls are computer systems that mediate access between two or more network segments, or between a network interface and the rest of the computer system

that hosts it. It assesses incoming and outgoing network traffic with an ideally coherent and manageable set of rules. This set of rules is implemented and

maintained by one or more system administrators and it should match a security policy, which describes high level security requirements. The goal of our

work is to provide means to measure the usability of firewall rule sets in terms of how easy it is for IT professionals to understand and manage them. We

started with semi-structured interviews with system administrators---a pilot study---to elicit the usability challenges related to the management of

firewall rule sets. The pilot study results were compared and combined with findings from the related work. The outcome is four usability factors related

to manageability of firewalls, which we formally define. We test and measure the cognitive aspects related to structure and ordering of rules in the rule

set with a user study. A second study with system administrators validates our metrics. We show that there is no significant difference between the results

of a ranking exercise performed by the system administrators and an implementation of our metrics.