Server Setup: Setting up the Firewall

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Home Lab Project

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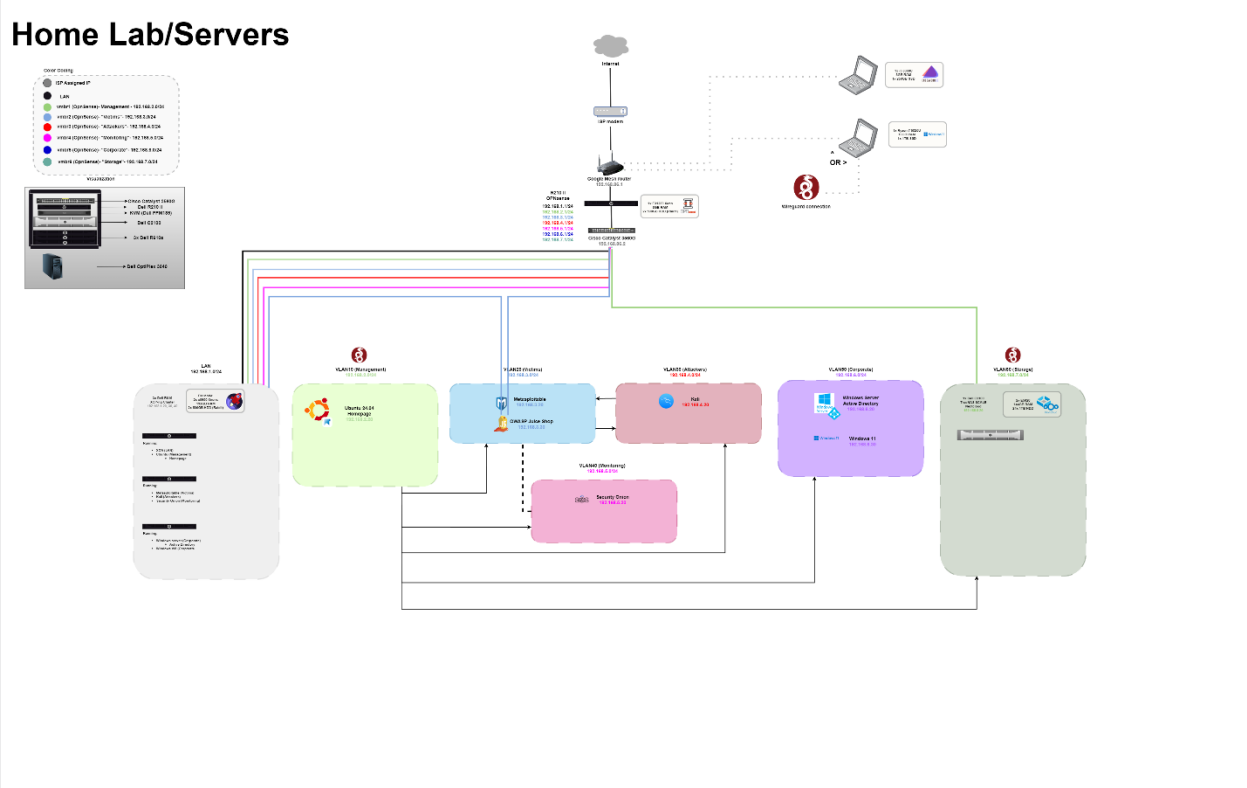
Project Focus

The focus of this project is to setup the firewall rules on OPNsense (24.7) in my home lab environment. This will provide some simple network security for my setup. Please note that my entire home lab is in an internal network, so I don't face the same immediate risk that a setup with a public facing IP would

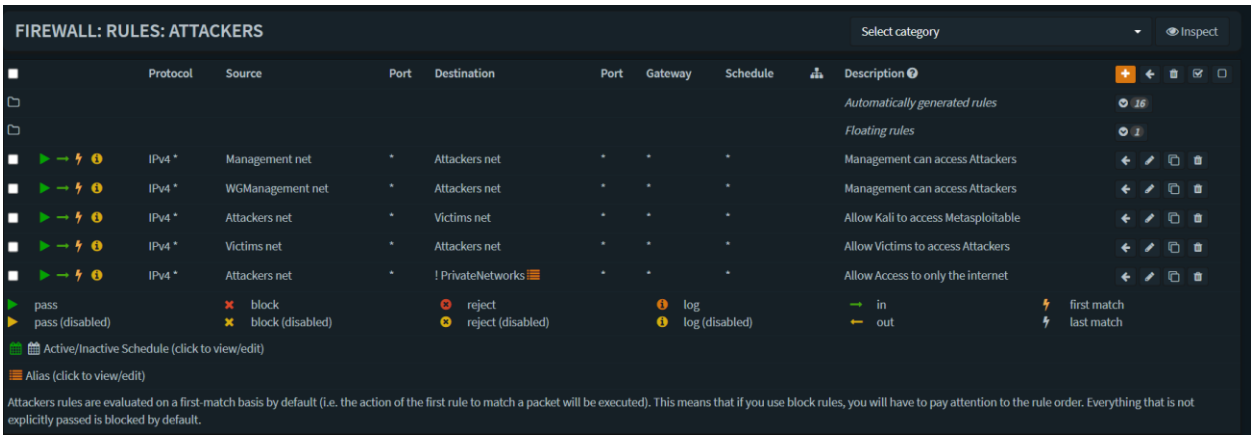
Attached below is a basic overview of the desired network topology for my home lab setup (After some consideration, it has changed a bit):



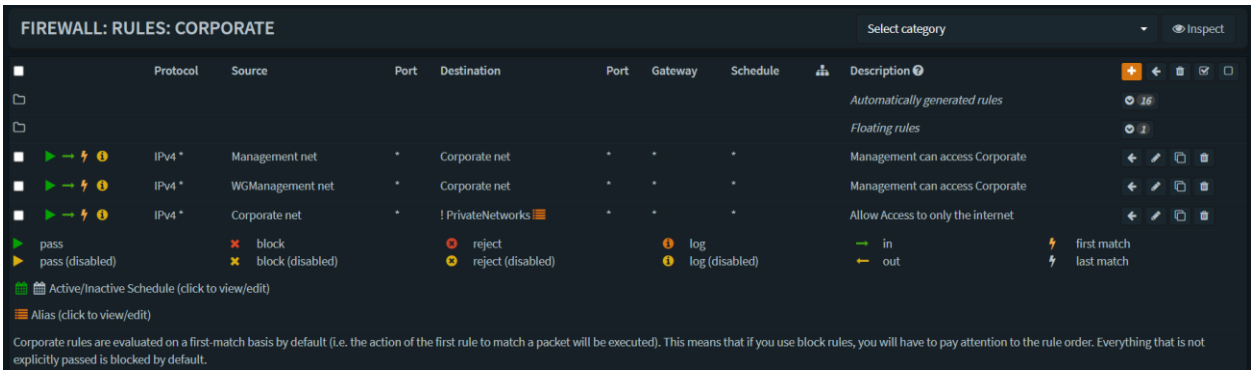
End-Goal Network Topology

Firewall Setup Process

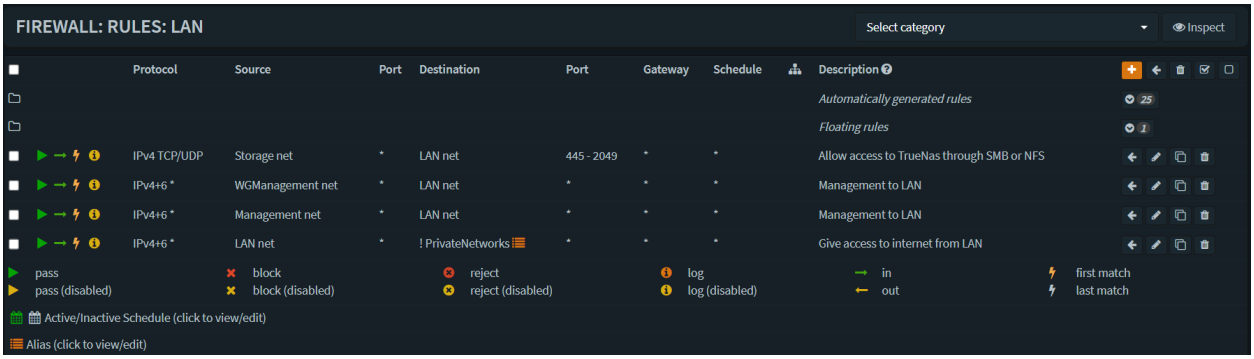
In this part, I will display the process of setting up the fireawll in OPNsense. This writeup will begin after my last addition to the project. Please note that there were some “behind-the-scenes” changes to my overall topology. I decided that instead of putting an Ubuntu server VM running a WireGuard instance in the desired networks, that I would instead simply make those instances in OPNsense. This part was extremely easy. In fact, all of these changes to the firewall were done through that VPN.



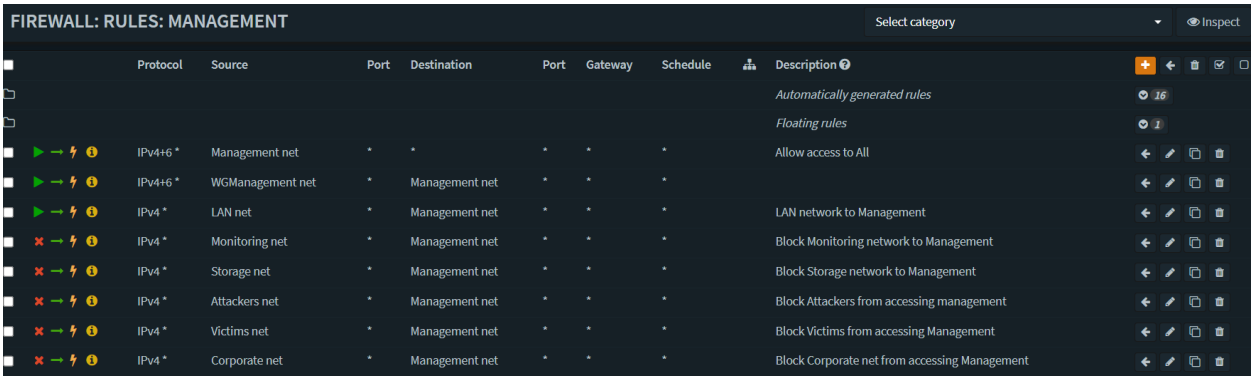
Attackers firewall rules



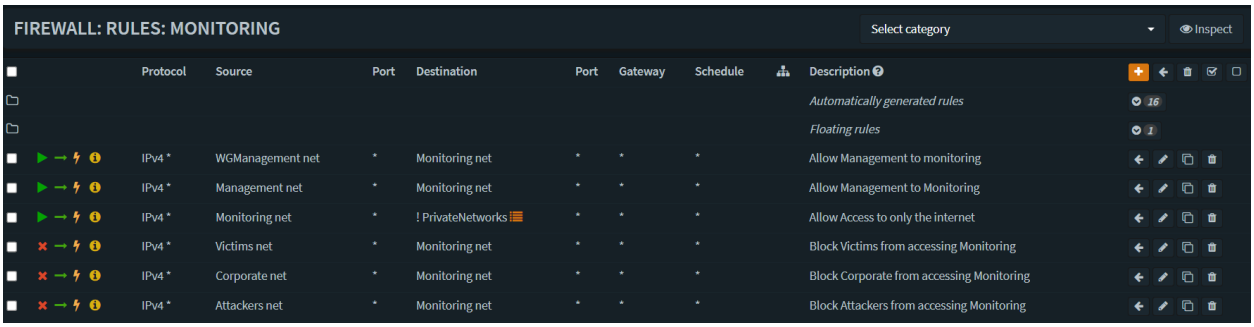
Corporate firewall rules



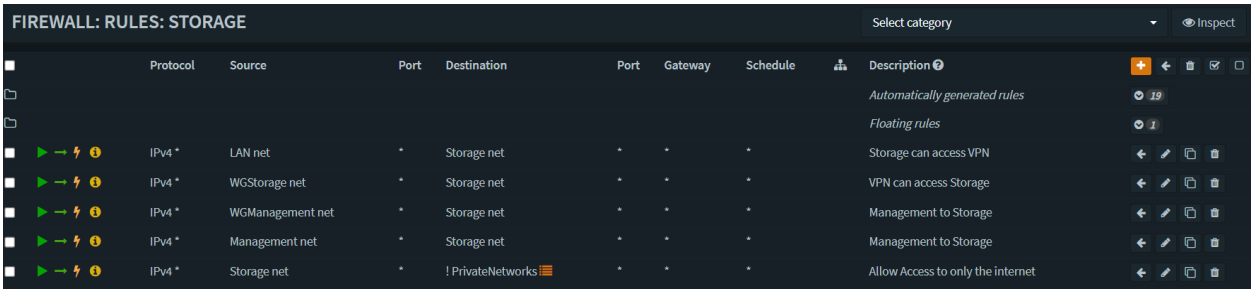
LAN firewall rules



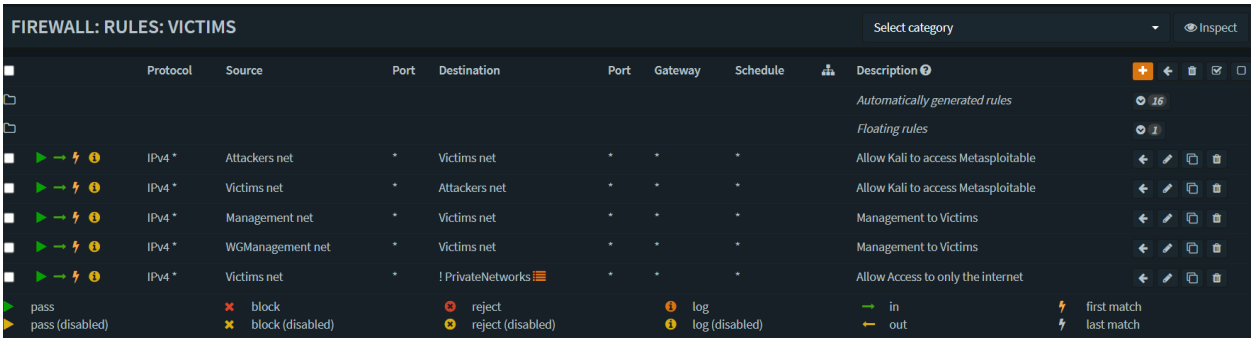
Management firewall rules



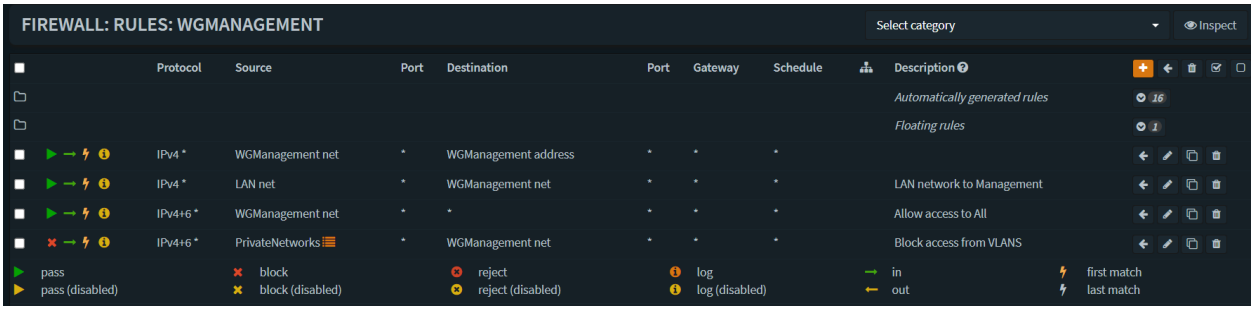
Monitoring firewall rules



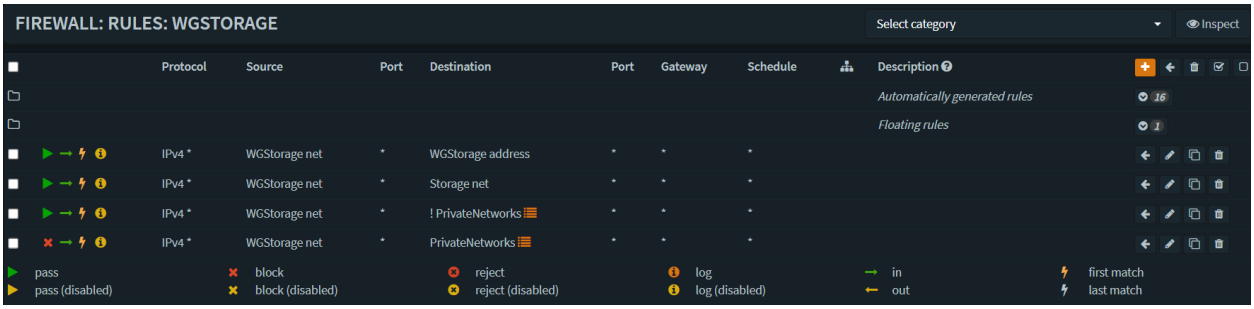
Storage firewall rules



Victim firewall rules



WGManagement firewall rules



WGStorage firewall rules

Write-up & Summary

In this project section, I focused on creating tailored firewall rules to enhance the security of this network architecture. These rules regulate traffic flow between subnets, allowing necessary communication while minimizing the attack surface and ensuring strict compliance with the principle of least privilege. This configuration establishes a robust foundation for a secure and scalable network environment.

References

Draw.io - free flowchart maker and diagrams online. Flowchart Maker & Online Diagram Software. (n.d.). https://app.diagrams.net/

OPNsense® a true open source security platform and more - OPNsense® is a true open source firewall and more. (2024, July 31). OPNsense® Is a True Open Source Firewall and More. https://opnsense.org/