
Exercise 1: Network Access Control

In networks, the access layer is considered the first line of defence against unwanted clients. This means that the access layer, where workstations reside, is the first line to reach internal networks. Therefore a network access control is set in place to allow or deny users from connecting to the network.

1. Install as a Virtual Machine the Packet Fence Zero Effort NAC solution [1].
2. This solution offers a barrage of security components in your infrastructure [2]. Inspect the OpenVAS component of the solution. What can it bring in terms of compliance with the registered network devices?
3. How can you integrate a Packet Fence in a Wireless Client environment?
4. What should happen if a device is uncompliant? How would you configure it?
5. Integrate the solution with your current Microsoft Active Directory environment.

Exercise 2: Simulating a network (Challenge)

This exercise is considered a challenge since, due to the lack of resources, it can be problematic. The main objective is for you to install a wireless router as a virtual machine and to emulate a wireless network with hwsim [3] [4]. The network should make use of the 802.1X authentication of the Packet Fence.

1. Follow the guide to provision the new emulated network;
2. Change the hostapd configuration to connect to the PacketFence [5]
3. Configure it such that two different users connect to two different VLANs.
4. If you were to deploy such a configuration, what security controls should you put in place?
5. What requirements would you make for each of the component of the infrastructure?

References

- [1] PacketFence, “Packetfence releases.” [Online]. Available: <https://www.packetfence.org/download.html#/zen>
- [2] “Packetfence overview.” [Online]. Available: <https://www.packetfence.org/about.html>
- [3] [Online]. Available: <https://hackmd.io/@akiranet/r1OC8CaNv>
- [4] [Online]. Available: https://people.computing.clemson.edu/~jmarty/courses/LinuxStuff/Emulating%20WLAN%20in%20Linux%20-%20part%20I_%20the%20802.11%20stack%20_%20Linux%20Embedded.pdf
- [5] “Packet fence hostapd configuration.” [Online]. Available: https://www.packetfence.org/doc/PackageFence_Network_Devices_Configuration_Guide.html#_hostapd