

‘Build a patient tracker system to help nurses monitor the patients’ situations’

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Introduction

The project I have chosen is a patient monitoring system that will monitor the patient’s individual situation on a continual basis. I am also focusing on the security element of the system, as these systems are a major concern against cyber-security attacks.

Aims/Objectives

To create a patient tracking system that is going to monitor each patient’s situation. Also making sure that the system is security protected against any security attacks.

- To gather and investigate research to analyze what types of systems are already out there
- To develop a patient tracker system that can be accessed by the staff members on the ward.
- To implement security features to protect patients personal data that is held on the system

Sources

I have used a range of different sources to gather my indicial research on existing systems [1],[2]. I have also looked at the security issues of having a web-based application especially on a healthcare network [3]. By gathering these types of sources, it has given me an insight on what types of systems are already in place and how I can differ my system compared to the existing systems.

Design

I have created a simplistic application design, so all the users are able to use the application. I have created a navigational path for certain parts of the application as this will restrict what users can access if they do not have the permissions to access that part of the system. I have added validation within the forms of the application as this will also restrict what cells the users can access.

Testing

I have completed two different pen tests on the application to test how secure the application is against security threats. Firstly, I used Nessus to scan the network for any vulnerabilities that might appear that could impact the security of the application. I also used OWASP ZAP to pen test the application to see if there's any vulnerabilities and they will be categorized from low, medium and high-risk level.

Conclusion

Overall, my patient tracker system was a success as it was able to record the patients data. The results from the testing also showed that the system is secure from any future security threats. For future development I would make sure that I include a fully functional tracking system that will record patient data continuously. This will make sure that the staff can monitor each patient at the same time.

References

1. R. Sahandi, G. Roushan, and V. Heaslip, “Remote patient monitoring to improve patient care on general hospital wards.,” no. April 2019, 2010.
2. B. Kommey, S. D. Kotey, and D. Opoku, “Patient Medical Emergency Alert System,” no. December, 2018.
3. A. Fatima and R. Colomo-Palacios, “Security aspects in healthcare information systems: A systematic mapping,” *Procedia Comput. Sci.*, vol. 138, pp. 12–19, 2018, doi: 10.1016/

Patient Tracker System

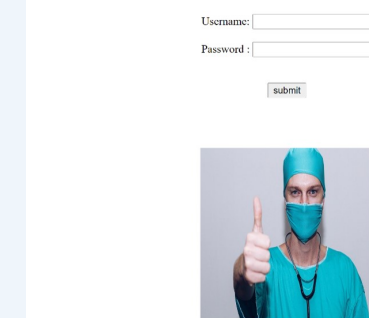


Figure 1 —Patient Tracker Homepage

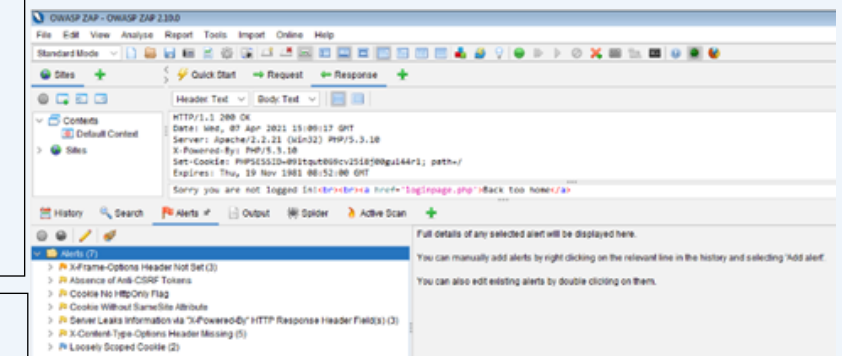


Figure 2—OWASP ZAP scanning tool

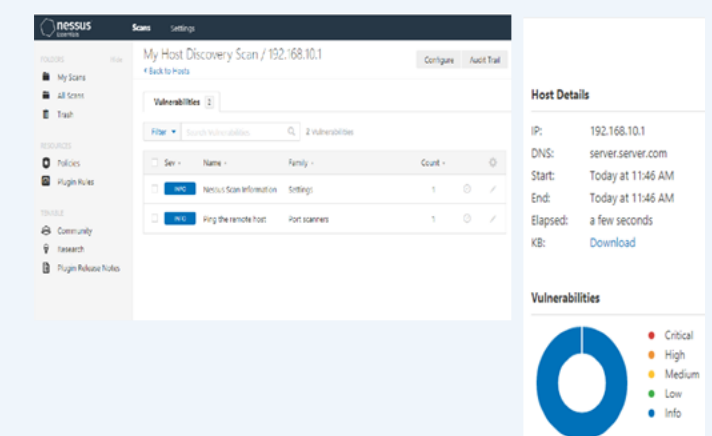


Figure 3—NESSUS web scanning tool

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2. OWASP ZAP scanning tool
3. NESSUS web scanning tool