Internship Assignment Report: Cyber Security and Digital Forensics

Assignment 1: Network Fundamentals

- **TryHackMe Rooms:**
    - Intro_to_networking
    - What_is_networking
- **HackTheBox Modules:**
    - Introduction-to-networking

Assignment Overview

- Welcome to my internship assignment report! This document highlights the cybersecurity and digital forensics challenges I've tackled as part of my Cyber Security and Digital Forensics internship with **CyberSecured India**. The focus of this report is on Network Fundamentals, and it includes practical exercises completed on **TryHackMe** and **HackTheBox.**
- Through these assignments, I've had the opportunity to apply theoretical knowledge in real-world scenarios, hone my problem-solving skills, and gain hands-on experience with essential cybersecurity concepts. Each section will walk you through the tasks I've completed, showcasing the steps I took, the tools I used, and the insights I gained along the way.

Background and Prior Experience

Before starting this internship, I had already completed several rooms on TryHackMe and HackTheBox. This prior experience gave me a solid foundation in cybersecurity principles and practical skills. During the internship, I continued to build on this knowledge by tackling new challenges and applying what I had previously learned in more complex scenarios.

About Me

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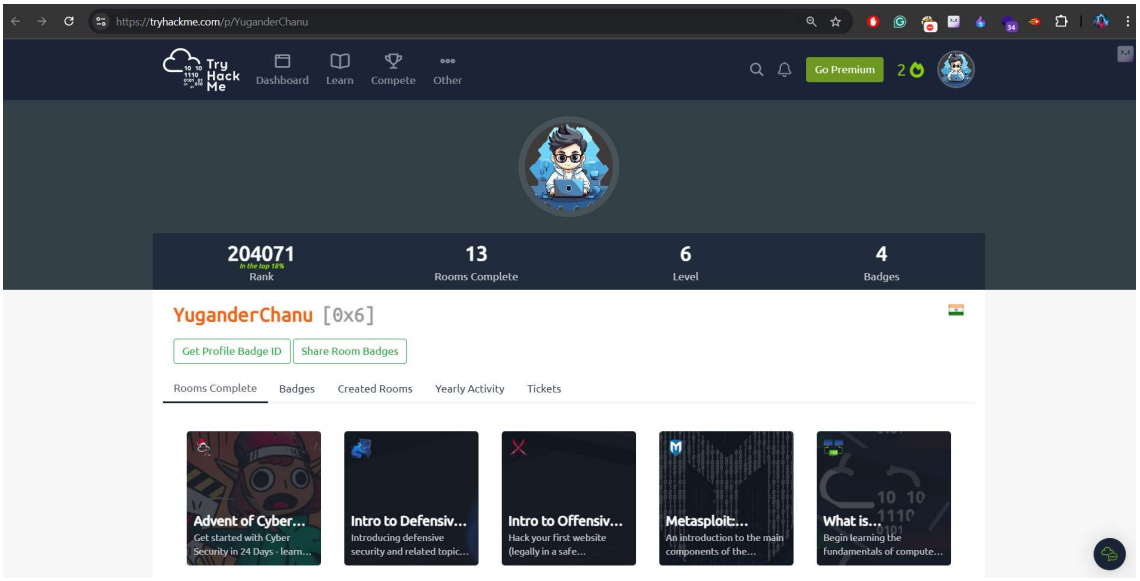
- **Submission Date:** 09/09/2024

TryHackMe

TryHackMe Account Picture:



Intro_to_networking

Overview:

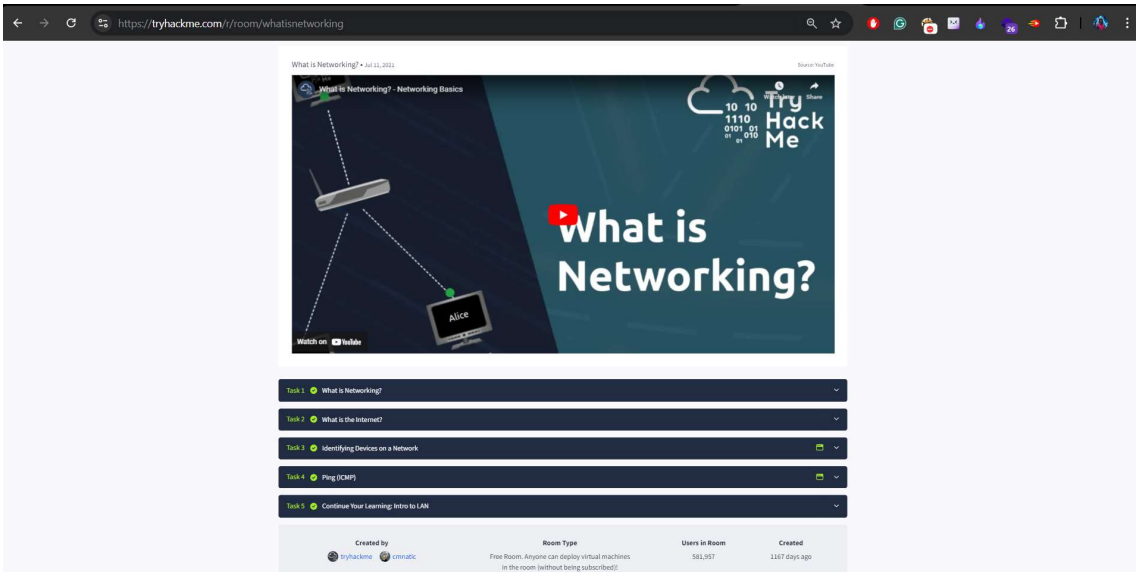
The "Introduction to Networking" room on TryHackMe is designed to provide a solid foundation in networking concepts. As part of this assignment, I navigated through this room to understand how data is transmitted across networks and how different networking components interact with each other. The room offers a balanced mix of theoretical knowledge and practical exercises, enabling me to apply what I learned in real-world scenarios. By completing this room, I gained a clearer understanding of fundamental networking concepts, which is critical for anyone pursuing a career in cybersecurity or network administration.

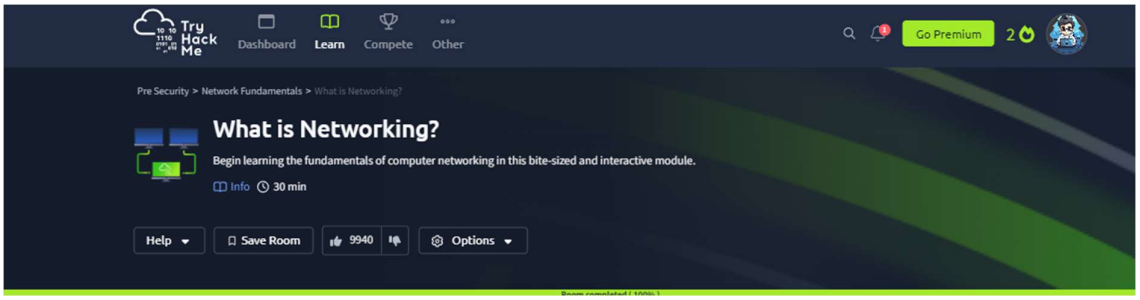
Topics Learned:

- OSI and TCP/IP Networking Models
- IP Addressing (IPv4 and IPv6) and Subnetting
- Roles of Network Devices (Routers, Switches, Hubs, Firewalls)
- Packet Switching and Routing
- Basic Network Troubleshooting Techniques

Screenshots:

The image below illustrates the completion of Intro_to_networking.





What is networking

Overview:

The "What is Networking?" room on TryHackMe offered a deeper dive into the fundamental concepts of networking. This room was structured to help me understand the various components and types of networks, their architecture, and the essential devices that facilitate

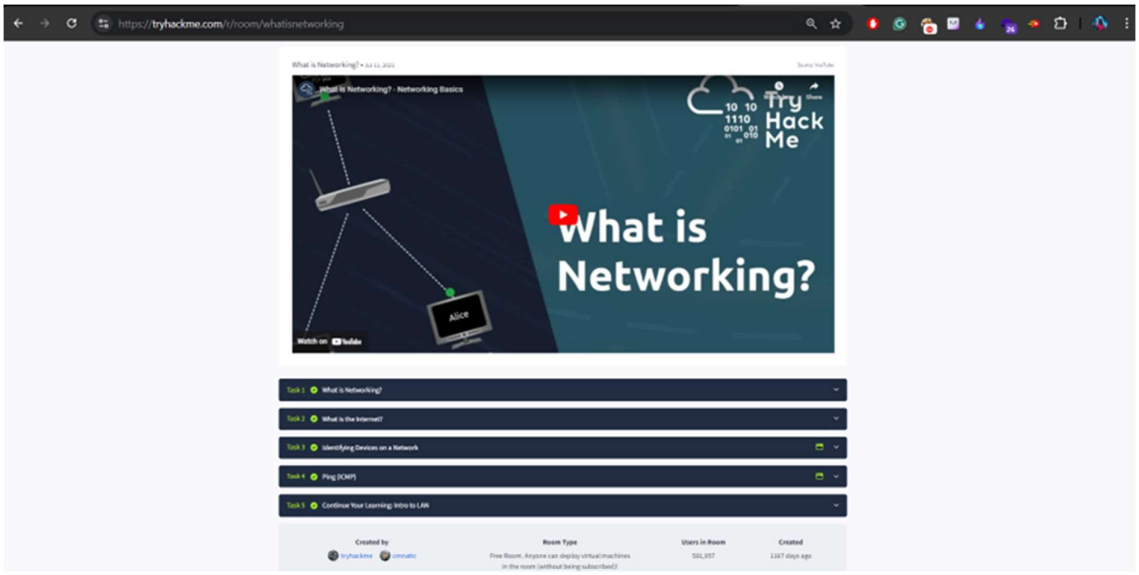
communication within them. The practical exercises in this room were highly beneficial in reinforcing my understanding of how different network elements interact and function together to create a cohesive system. This knowledge is crucial for anyone who wants to build, manage, or secure networks effectively.

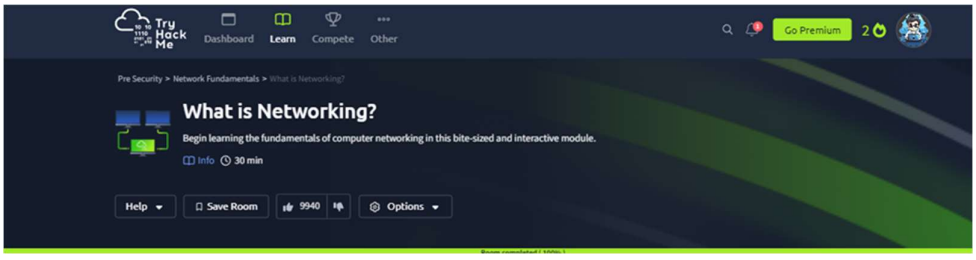
Topics Learned:

- Types of Networks (LAN, WAN, MAN, etc.)
- Network Topologies and Architectures
- Functions of Key Network Devices (Routers, Switches, Firewalls)
- Basics of Network Protocols (TCP, UDP)
- Introduction to Firewalls and Their Importance

Screenshots:

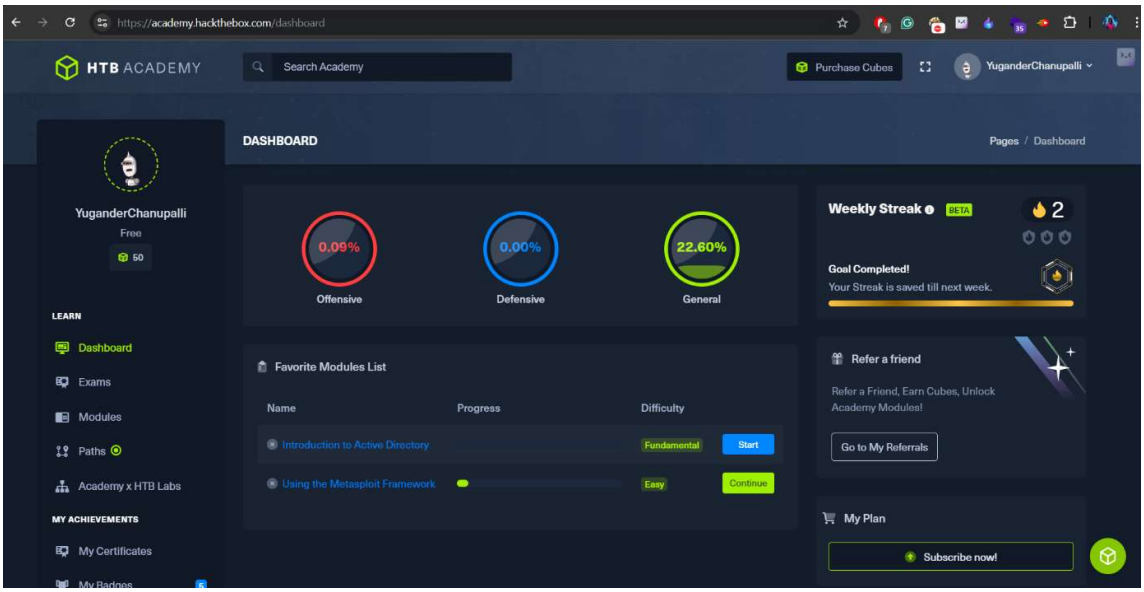
The image below illustrates the completion of What is networking.





HackTheBox Academy

HackTheBox Account Picture:



Introduction to Networking

Overview:

The "Introduction to Networking" course on Hack The Box Academy provided an immersive learning experience focused on networking basics crucial for cybersecurity professionals. Unlike traditional lectures, this course combined hands-on labs with theoretical content, allowing me to learn by doing. I explored various networking concepts, learned about the different protocols, and practiced with real-world scenarios. This approach made the learning process more effective and enjoyable, helping me to understand not just the “what” but also the “why” and “how” behind each concept. This course laid a solid foundation in networking

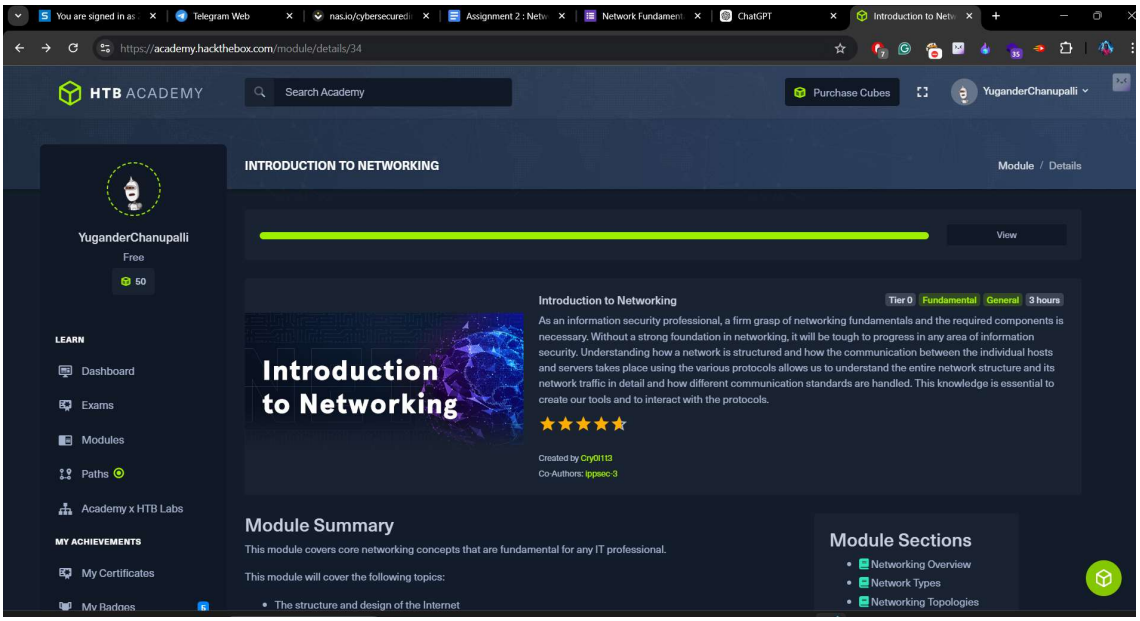
that is essential for solving security challenges and understanding the complexities of modern network environments.

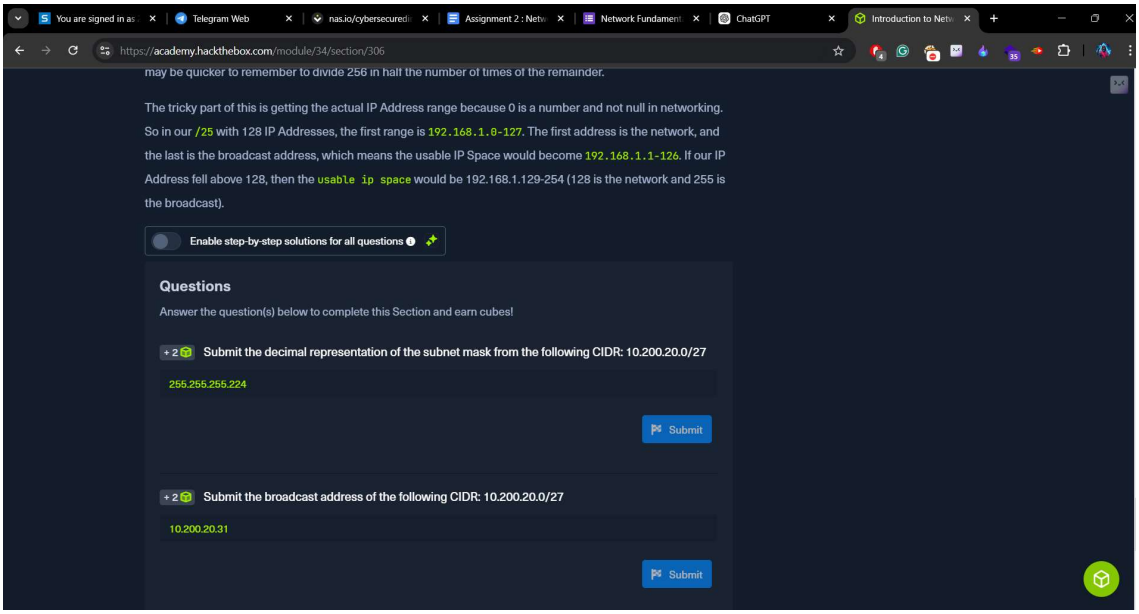
Topics Covered:

- Fundamentals of Networking (LAN, WAN, MAN, PAN)
- OSI Model Layers and Their Functions
- IP Addressing, Subnetting, and CIDR Notation
- Overview of Network Protocols (TCP, UDP, ICMP)
- Basics of Routing and Switching
- Introduction to Network Security and Firewalls
- Practical Lab Exercises: Packet Analysis and Network Troubleshooting

Screenshots:

The image below illustrates the completion of Introduction to networking.




https://academy.hackthebox.com/module/34/section/306
may be quicker to remember to divide 256 in half the number of times of the remainder.
The tricky part of this is getting the actual IP Address range because 0 is a number and not null in networking. So in our /25 with 128 IP Addresses, the first range is 192.168.1.0-127. The first address is the network, and the last is the broadcast address, which means the usable IP Space would become 192.168.1.1-126. If our IP Address fell above 128, then the usable ip space would be 192.168.1.129-254 (128 is the network and 255 is the broadcast).
Enable step-by-step solutions for all questions
Questions
Answer the question(s) below to complete this Section and earn cubes!
+2 Submit the decimal representation of the subnet mask from the following CIDR: 10.200.20.0/27
255.255.255.224
Submit
+2 Submit the broadcast address of the following CIDR: 10.200.20.0/27
10.200.20.31
Submit