



Incident handler's journal

Scenario

A small U.S. health care clinic specializing in delivering primary-care services experienced a security incident on a Tuesday morning, at approximately 9:00 a.m. Several employees reported that they were unable to use their computers to access files like medical records. Business operations shut down because employees were unable to access the files and software needed to do their job. Additionally, employees also reported that a ransom note was displayed on their computers. The ransom note stated that all the company's files were encrypted by an organized group of unethical hackers who are known to target organizations in healthcare and transportation industries. In exchange for restoring access to the encrypted files, the ransom note demanded a large sum of money in exchange for the decryption key.

The attackers were able to gain access into the company's network by using targeted phishing emails, which were sent to several employees of the company. The phishing emails contained a malicious attachment that installed malware on the employee's computer once it was downloaded.

Once the attackers gained access, they deployed their ransomware, which encrypted critical files. The company was unable to access critical patient data, causing major disruptions in their business operations. The company was forced to shut down their computer systems and contact several organizations to report the incident and receive technical assistance.

Date: July 23, 2024	Entry: #1
Description	Documenting a cybersecurity incident This incident occurred in the two phases:

	<ol style="list-style-type: none"> 1. Detection and Analysis: The scenario outlines how the organization first detected the ransomware incident. For the analysis step, the organization contacted several organizations for technical assistance. 2. Containment, Eradication, and Recovery: The scenario details some steps that the organization took to contain the incident. For example, the company shut down their computer systems. However, since they could not work to eradicate and recover from the incident alone, they contacted several other organizations for assistance.
Tool(s) used	None
The 5 W's	<ul style="list-style-type: none"> • Who: An organized group of unethical hackers • What: A ransomware security incident • Where: At a health care company • When: Tuesday 9:00 a.m. • Why: The incident happened because unethical hackers were able to access the company's systems using a phishing attack. After gaining access, the attackers launched their ransomware on the company's systems, encrypting critical files. The attackers' motivation appears to be financial because the ransom note they left demanded a large sum of money in exchange for the decryption key.
Additional notes	<ol style="list-style-type: none"> 1. How could the health care company prevent an incident like this from occurring again? 2. Should the company pay the ransom to retrieve the decryption key?

Date: July 25 2024	Entry: #2
Description	Analyzing a packet capture file
Tool(s) used	For this activity, I used Wireshark to analyze a packet capture file. Wireshark is a network protocol analyzer that uses a graphical user interface. The value of Wireshark in cybersecurity is that it allows security analysts to capture and analyze network traffic. This can help in detecting and investigating malicious activity.

The 5 W's	<ul style="list-style-type: none"> • Who: N/A • What: N/A • Where: N/A • When: N/A • Why: N/A
Additional notes	I've never used Wireshark before, so I was excited to begin this exercise and analyze a packet capture file. At first glance, the interface was very overwhelming. I can see why it's such a powerful tool for understanding network traffic.

Date: July 25 2024	Entry: #3
Description	Capturing my first packet
Tool(s) used	For this activity, I used tcpdump to capture and analyze network traffic. Tcpdump is a network protocol analyzer that's accessed using the command-line interface. Similar to Wireshark, the value of tcpdump in cybersecurity is that it allows security analysts to capture, filter, and analyze network traffic.
The 5 W's	<ul style="list-style-type: none"> • Who: N/A • What: N/A • Where: N/A • When: N/A • Why: N/A
Additional notes	I'm still new to using the command-line interface, so using it to capture and filter network traffic was a challenge. I got stuck a couple of times because I used the wrong commands. But after carefully following the instructions and redoing some steps, I was able to get through this activity and capture network traffic.

Scenario

You are a level one security operations center (SOC) analyst at a financial services company. You have received an alert about a suspicious file being downloaded on an employee's computer.

You investigate this alert and discover that the employee received an email containing an attachment. The attachment was a password-protected spreadsheet file. The spreadsheet's password was provided in the email. The employee downloaded the file, then entered the password to open the file. When the employee opened the file, a malicious payload was then executed on their computer.

You retrieve the malicious file and create a SHA256 hash of the file. You might recall from a previous course that a hash function is an algorithm that produces a code that can't be decrypted. Hashing is a cryptographic method used to uniquely identify malware, acting as the file's unique fingerprint.

Date: July 27 2024	Entry: #4
Description	Investigate a suspicious file hash
Tool(s) used	<p>For this activity, I used VirusTotal, which is an investigative tool that analyzes files and URLs for malicious content such as viruses, worms, trojans, and more. It's a very helpful tool to use if you want to quickly check if an indicator of compromise like a website or file has been reported as malicious by others in the cybersecurity community. For this activity, I used VirusTotal to analyze a file hash, which was reported as malicious.</p> <p>This incident occurred in the Detection and Analysis phase. The scenario put me in the place of a security analyst at a SOC investigating a suspicious file hash. After the suspicious file was detected by the security systems in place, I had to perform deeper analysis and investigation to determine if the alert signified a real threat.</p>
The 5 W's	<ul style="list-style-type: none">● Who: An unknown malicious actor● What: An email sent to an employee contained a malicious file attachment with the SHA-256 file hash of 54e6ea47eb04634d3e87fd7787e2136ccfbcc80ade34f246a12cf93bab527f6b● Where: An employee's computer at a financial services company● When: At 1:20 p.m., an alert was sent to the organization's SOC after the

	<p>intrusion detection system detected the file</p> <ul style="list-style-type: none"> • Why: An employee was able to download and execute a malicious file attachment via e-mail.
Additional notes	<p>How can this incident be prevented in the future? Should we consider improving security awareness training so that employees are careful with what they click on?</p>

Reflections/Notes:

1. Were there any specific activities that were challenging for you? Why or why not?

I really found the activity using tcpdump challenging. I am new to using the command line, and learning the syntax for a tool like tcpdump was a big learning curve. At first, I felt very frustrated because I wasn't getting the right output. I redid the activity and figured out where I went wrong. What I learned from this was to carefully read the instructions and work through the process slowly.

2. Has your understanding of incident detection and response changed after taking this course?

After taking this course, my understanding of incident detection and response has definitely evolved. At the beginning of the course, I had some basic understanding of what detection and response entailed, but I didn't fully understand the complexity involved. As I progressed through the course, I learned about the lifecycle of an incident; the importance of plans, processes, and people; and tools used. Overall, I feel that my understanding has changed, and I am equipped with more knowledge and understanding about incident detection and response.

3. Was there a specific tool or concept that you enjoyed the most? Why?

I really enjoyed learning about network traffic analysis and applying what I learned through network protocol analyzer tools. It was my first time learning about network traffic analysis, so it was both challenging and exciting. I found it really fascinating to be able to use tools to capture network traffic and analyze it in real time. I am definitely more interested in learning more about this topic, and I hope to one day become more proficient in using network protocol analyzer tools.
