

Activity Exemplar: Apply OS hardening techniques

Section 1: Identify the network protocol involved in the incident

The protocol involved in the incident is the Hypertext transfer protocol (HTTP). Since the issue was with accessing the web server for `yummyrecipesforme.com`, we know that requests to web servers for web pages involve http traffic. Also, when we ran `tcpdump` and accessed the `yummyrecipesforme.com` website the corresponding `tcpdump` log file showed the usage of the http protocol when contacting the . The malicious file is observed being transported to the users' computers using the HTTP protocol at the application layer.

Section 2: Document the incident

Several customers contacted the website's helpdesk stating that when they visited the website, they were prompted to download and run a file that contained access to new recipes. Their personal computers have been operating slowly ever since. The website owner tried logging into the web server but noticed they were locked out of their account.

The cybersecurity analyst used a sandbox environment to open the website without impacting the company network. Then, the analyst ran `tcpdump` to capture the network traffic packets produced by interacting with the website. The analyst was prompted to download a file claiming it would provide access to free recipes, accepted the download and ran it. The browser then redirected the analyst to a fake website (`greatrecipesforme.com`).

The cybersecurity analyst inspected the `tcpdump` log and observed that the browser initially requested the IP address for the `yummyrecipesforme.com` website. Once the connection with the website was established over the HTTP protocol, the analyst recalled downloading and executing the file. The logs showed a sudden change in network traffic as the browser requested a new IP address for the `greatrecipesforme.com` URL. The network traffic was then rerouted to the new IP address for the `greatrecipesforme.com` website.

The senior cybersecurity professional analyzed the source code for the

websites and the downloaded file. The analyst discovered that an attacker had manipulated the website to add code that prompted the users to download a malicious file disguised as a browser update. Since the website owner stated that they had been locked out of their administrator account, the team believes the attacker used a brute force attack to access the account and change the admin password. The execution of the malicious file compromised the end users' computers.

Section 3: Recommend one or more remediations for brute force attacks

One security measure the team plans to implement to protect against brute force attacks is to disallow previous passwords from being used. Since the vulnerability that led to this attack was the attacker's ability to use a default password to log in, it's important that we prevent any old passwords such as default passwords from being used to reset the password. Another supportive measure is to require more frequent password updates, so in case any unauthorized person becomes aware of the password, they are less likely to be able to use that password if the password is updated sooner than later. Finally, another helpful solution is to implement two-factor authentication (2FA). 2FA requires authentication via a password and also by confirming a one-time passcode (OTP) sent to either their email or phone. Once the user confirms their identity through their login credentials and the OTP, they will gain access to the system. Any malicious actor that attempts a brute force attack will not likely gain access to the system because it requires additional authentication.