**EAS 596 - CYBERSECURITY ANALYTICS**

**ASSIGNMENT 03**

**GROUP- 5:**

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**1) Describe what an IOC is, give an example of where you could get an IOC, and then list out three ways in which you would use an IOC as a Security Analyst in your day-to-day operations with Splunk.**

An **IOC (Indicator of Compromise)**is a piece of forensic data that identifies potentially malicious activity on a system or network. IOCs can include **IP addresses, domain names, URLs, file hashes, email addresses, or registry keys that indicate a cyberattack.**

**Example Source of IOC: AlienVault OTX,** which provides real-time threat intelligence from open-source feeds.

**Three ways to use IOCs in Splunk:**

* **Threat Hunting:** Use IOCs to proactively search through logs for signs of compromise using queries.
* **Alerting:** Set up real-time alerts that trigger when an IOC matches live data, such as detecting communication with malicious domain.
* **Correlation Searches:** Link IOCs with other log sources (firewall, DNS, endpoint logs) to identify lateral movement or multi-staged attacks.

**2) Create a search where you would map out the IP address based on the country where it came from. See below for an example diagram. There is no need to include a screenshot or detail how to make the graph, just give the query. In addition, what value do you see in this mapping technique? Give 3 use cases where you think creating a map like this would prove to be valuable in an organization (think outside of this dataset).**

**QUERY:**

**A close-up of a computer screen

AI-generated content may be incorrect.**

**Advantage of Mapping Technique:** Mapping IP addresses by country helps quickly visualize the geographical distribution of network traffic. This enables security teams and analysts to identify unusual patterns or potential threats based on location.

**Use Cases:**

* Mapping Technique helps to identify **unusual spikes** in traffic or attacks originating from unexpected countries (e.g., a sudden flood of login attempts from a high-risk region).
* **Access Policy Enforcement:** Useful for enforcing **geo-based** access control policies - e.g., blocking or alerting when access is attempted from countries where the organization does not operate.
* It also helps **marketing** or **operations teams** understand where users are connecting from, supporting business decisions like content localization, server placement, or product demand forecasting.

**3) Create two additional searches based on the data in the index and for each, describe why you see value in these searches and how it could be used in a Splunk diagram to provide security value.**

**QUERY:**

A white background with black and white clouds

AI-generated content may be incorrect.

**OUTPUT:**

A screenshot of a social media post

AI-generated content may be incorrect.

This search helps identify the most frequently observed types of **Indicators of Compromise (IOCs)** such as **url, ip, sha256, domain,** and **md5.** Knowing which types are most common allows security teams to focus detection and mitigation strategies accordingly.

For example,if **URL IOCs** dominate, the organization might tighten web filtering rules or invest more in phishing detection. A bar chart visualizationwould provide a clear snapshot of IOC distribution, guiding incident response priorities.

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AI-generated content may be incorrect.**QUERY:**

**OUTPUT:**

A screenshot of a computer

AI-generated content may be incorrect.

This search identifies which users are associated with the most IOC hits. This could reveal specific individuals being targeted by phishing or malware campaigns. High counts on a particular user may suggest a compromised account or elevated risk requiring investigation.

This can be visualized in a column chart or table to assist SOC analysts in proactively defending high-risk user accounts, implementing additional monitoring, or triggering password resets if necessary.