

Assumptions:

- The provided HTTP logs are representative of the enterprise web server's traffic.
- Reconnaissance activities can be identified based on abnormal patterns in the HTTP logs.
- Baseline statistics derived from normal web traffic are accurate representations of legitimate behaviour.
- Thresholds for abnormal behaviour detection are set appropriately to minimize false positives and false negatives.

Steps:

- 1) Data Pre-processing
 - Download & extract the dataset
 - Parse and pre-process the HTTP logs to obtain relevant information
 - Filter out all irrelevant data
- 2) Metrics calculation
 - Calculate key metrics that indicate reconnaissance activities
 - Calculate all activities related to abnormal behaviour such as a high number of failed requests, repeated access to restricted areas etc
 - Take time-based metrics into consideration such as the number of requests within a specific time window to detect scanning/probing behaviour
- 3) Establishing Baseline
 - Analysing a period of web traffic
 - Calculate statistical measures such as mean, standard deviation, percentiles for the metrics obtained
 - Use the statistics above as thresholds for abnormal behaviour detection
- 4) Identify Suspicious IPs
 - Compare the calculated metrics of each IP address with the baseline thresholds
 - Identify IPs that exceed the threshold and categorize IPs based on the severity of their suspicious behaviour.
- 5) False Positive Reduction
 - Conduct analysis to reduce false positives
- 6) Alert Generation
 - Generate alerts and reports listing the shortlisted IPs that exhibit potential reconnaissance activities