TEAM -I

Vulnerability Analysis

Part I-Executive summary

Overview

Actualizing cyber security in an organization includes a comprehensive and proactive approach to ensure its computerized resources, information, and framework from cyber dangers. The steps to actualize cyber security viably at each organization incorporate:

- Develop a clear and well-defined cyber security arrangement and methodology that adjust with the organization's commerce goals and hazard resilience.
- Conduct a exhaustive hazard appraisal to distinguish potential cybersecurity dangers and vulnerabilities specific to the organization. Prioritize dangers based on their potential affect and probability of event. Execute chance moderation measures and make a chance administration arrange to address identified vulnerabilities.
- Prepare all representatives on cyber security best hones and the part they play in defending the organization's data. Teach them around phishing, social designing, watchword cleanliness, and other common assault vectors to advance a security-conscious culture.
- Implement solid get to control measures to guarantee that as it were authorized staff can get to delicate information and basic frameworks. Utilize multi-factor verification (MFA) for an additional layer of security.
- Convey firewalls, interruption detection/prevention frameworks (ids/ips),and secure doors to screen and control arrange traffic .
- Install antivirus computer program, endpoint security apparatuses, and host-based firewalls on all gadgets to guard against malware and other dangers at the gadget level.
- Introduce antivirus program, endpoint security instruments, and host-based firewalls on all gadgets to protect against malware and other dangers at the gadget level.
- Scramble touchy information both at rest and in travel to avoid unauthorized get to and guarantee information confidentiality.
- Establish a orderly handle to apply security patches and overhauls instantly to all

computer program, working frameworks, and firmware to address known vulnerabilities.

- Develop a well-defined occurrence reaction arrange (IRP) to handle cybersecurity occurrences successfully. The arrange ought to incorporate clear rules on distinguishing, announcing, containing, killing, and recuperating from security episodes.
- Conduct customary inner and outside security reviews and appraisals to assess the organization's security pose and distinguish potential shortcomings or crevices.
- Monitoring and Logging: Actualize centralized logging and real-time checking of organize and framework exercises to distinguish and react to suspicious exercises instantly.
- Establish clear channels for announcing security occurrences and communicating with partners, counting representatives, clients, accomplices, and administrative specialists.

2. Team Members Involved in vulnerability Assessment

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1	Dr.Megha Sehgal	Assistant Professor	9654236872 megha.sehgal@bharatividyapeeth.edu
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3. List of Vulnerable Parameter, location discovered

S.No	Name of the Vulnerability	Reference CWE
1	Broken Access Control	CWE 285- Improper Authorization
2	Cryptographic Failures	CWE-916: Use of Password Hash With Insufficient Computational Effort
3	Injection	CWE-564: SQL Injection: Hibernate

4	Insecure Design	CWE-653: Improper Isolation or Compartmentalization
5	Security Misconfiguration	CWE-614:Sensitive Cookie in HTTPS Session Without 'Secure' Attribute
6	Vulnerable and Outdated Components	CWE-1395: Dependency on Vulnerable Third-Party Component
7	Identification and Authentication Failures	CWE-521: Weak Password Requirements
8	Software and Data Integrity Failures	CWE-565C: Reliance on Cookies without Validation and Integrity Checkin
9	Security Logging and Monitoring Failures	CWE-532: Insertion of Sensitive Information into Log File
10	Server Side Request Forgery	CWE-918:Server Side Request Forgery

1. CWE: CWE 285- Improper Authorization

OWASP CATEGORY : A01 2021 Broken Access Control

DESCRIPTION: The product does not perform or incorrectly performs an authorization check when an actor attempts to access a resource or performan action.

BUSINESS IMPACT: Accepting a client with a given character, authorization is the method of deciding whether that client can get to a given asset, based on the user's benefits and any authorizations or other access-control determinations that apply to the asset. When get to control checks are not connected reliably - or not at all - clients are able to get to information or perform activities that they ought to not be allowed to perform. This will lead to a wide extend of issues, counting data exposures, dissent of benefit, and self-assertive code execution.

2. CWE: CWE-916: Use of Password Hash With Insufficient Computational Effort

OWASP CATEGORY: A02 2021 Cryptographic Failures

DESCRIPTION: The product generates a hash for a password, but it uses ascheme that does not provide a sufficient level of computational effort that would make password cracking attacks infeasible or expensive.

BUSINESS IMPACT: In this plan, verification includes tolerating an approaching watchword, computing its hash, and comparing it to the put away hash. After an assailant has obtained put away watchword hashes, they are continuously able to brute drive hashes offline. As a shield, it is as it were conceivable to moderate down offline assaults by selecting hash calculations that are as asset seriously as conceivable.

3. CWE: CWE 564: SQL Injection: HibernateOWASP

CATEGORY : A03 2021 Injection

DESCRIPTION: Using Hibernate to execute a dynamic SQL statement built with user-controlled input can allow an attacker to modify the statement's meaning or to execute arbitrary SQL commands.

BUSINESS IMPACT: Programmers utilize SQL infusion assaults to get to delicate trade or actually identifiable data (PII), which eventually increments delicate information introduction. Utilizing SQL infusion, aggressors can recover and modify information, which dangers uncovering delicate company information put away on the SQL server. Compromise Users' Protection: Depending on the information put away on the SQL server, an assault can uncover private client information, such as credit card numbers.

4. CWE: CWE 653: Improper Isolation or Compartmentalization

OWASP CATEGORY : A04 2021 Insecure Design

DESCRIPTION: The product violates well-established principles for secure design.This can introduce resultant weaknesses or make it easier for developers to introduce related weaknesses during implementation. Because code is centered around design, it can be resource-intensive to fix design problems.

BUSINESS IMPACT: Uncertain framework arrangement dangers stem from blemishes within the security settings, setup and solidifying of the distinctive frameworks over the pipeline (e.g. SCM, CI, Artifact store), frequently coming about in “low hanging fruits” for aggressors looking to expand their toehold within the environment.

5. CWE: CWE 614-Sensitive Cookie in HTTPS Session Without 'Secure' Attribute

OWASP CATEGORY : A05 2021 Security Misconfiguration

DESCRIPTION: The Secure attribute for sensitive cookies in HTTPS sessions is not set, which could cause the user agent to send those cookies in plaintext over an HTTP session.

BUSINESS IMPACT: Security misconfigurations permit assailants to pick up unauthorized get to to systems, frameworks and information, which in turn can cause noteworthy money related and reputational harm to your organization.

6. CWE: CWE 1395: Dependency on Vulnerable Third-Party Component

OWASP CATEGORY : A06 2021 Vulnerable and Outdated Components

DESCRIPTION: The product has a dependency on a third-party component that contains one or many products which are large enough or complex enough and that part of their functionality uses libraries, modules, or other intellectual property developed by third parties who are not the product creator.

BUSINESS IMPACT: A complete working framework may be from a third-party provider in a few equipment items. Whether open or closed source, these components may contain freely known vulnerabilities that might be abused by foes to compromise the item with more known vulnerabilities. Dependency-Check could be a Computer program Composition Investigation (SCA) device that endeavors to identify freely uncovered vulnerabilities contained inside a project's conditions. It does this by deciding in the event that there's a Common Stage Identification (CPE) identifier for a given reliance.

7. CWE: CWE 521-Weak Password Requirements

OWASP CATEGORY : A07 2021 Identification and Authentication Failures

DESCRIPTION: The product does not require that users should have strong passwords, which makes it easier for attackers to compromise user accounts.

BUSINESS IMPACT: Confirmation components regularly depend on a memorized mystery (moreover known as a watchword) to supply an attestation of character for a client of a framework. It is subsequently critical that this secret word be of adequate complexity and illogical for an foe to figure. The particular necessities around how complex a secret word ought to be depends on the sort of framework being secured. Selecting the right watchword prerequisites and upholding them through execution are basic to the in general victory of the confirmation component.

8. CWE: CWE-565C Reliance on Cookies without Validation andIntegrity Checkin

OWASP CATEGORY : A08 2021 Software and Data Integrity Failures

DESCRIPTION: The product relies on the existence or values of cookies when performing security-critical operations, but it does not properly ensure that the setting is valid for the associated user.Attackers can easily modify cookies, within the browser or by implementing the client-side code outside of the browser. Reliance on cookies without detailed validation and integritychecking can allow attackers to bypass authentication, conduct injection attacks such as SQL injection and cross-site scripting, or otherwise modify inputs in unexpected ways.

BUSINESS IMPACT: This issue can be essential to numerous sorts of shortcomings in web applications. A engineer may perform appropriate approval against URL parameters whereas expecting that assailants cannot adjust treats. As a result, the program might skip fundamental input approval to empower cross-site scripting, SQL infusion, cost altering, and other assaults.

9. CWE: CWE-918 insertion of Sensitive Information into Log File

OWASP CATEGORY: A09 2021 Security Logging and Monitoring Failures

DESCRIPTION: While logging all information may be helpful during development stages, it is important that logging levels be set appropriately before a product ships so that sensitive user data and system information are not accidentally exposed to potential attackers.

BUSINESS IMPACT: Data composed to log records can be of a touchy nature and grant profitable direction to an aggressor or uncover delicate client data.

10. CWE: CWE-918 Server Side Request Forgery

OWASP CATEGORY : A10 2021 - Server Side Request Forgery

DESCRIPTION: The web server receives a URL or similar request from an upstream component and retrieves the contents of this URL, but it does not sufficiently ensure that the request is being sent to the expected destination.

BUSINESS IMPACT: A fruitful SSRF assault can frequently result in unauthorized activities or get to information inside the organization, either within the helpless application itself or on other back-end frameworks that the application can communicate with.

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Stage : 2 Report

NESSUS Vulnerability Report

Overview

Performing a vulnerability assessment for a college website is crucial to identify and address potential security weaknesses that could be exploited by attackers. Security is an ongoing process, and continuous monitoring and improvement are essential to maintain a robust defense against potential threats. Additionally, if you lack the expertise to conduct a thorough assessment, it is wise to seek assistance from qualified cybersecurity professionals. Verify that the website is secure and displays correctly on various devices and browsers. Document all identified vulnerabilities, along with their severity and potential impact. Prioritize fixesbased on criticality and help the college's IT team or web developers with the remediation process. Document all identified vulnerabilities, along with their severity and potential impact. Prioritize fixes based on criticality and help the college's IT team or web developers with the remediation process.

Nessus is a popular vulnerability assessment tool that is widely used by

cybersecurity professionals and organizations to identify and address security weaknesses in their networks, systems, and applications. Here are some of the key uses of Nessus:

Vulnerability Scanning: Nessus is primarily used for automated vulnerability scanning. It scans networks, servers, endpoints, and applications to detect known vulnerabilities and misconfigurations. This helps organizations identify potential entry points for attackers and prioritize their security efforts.

Patch Management: The scan results generated by Nessus provide information about missing patches and updates for various software and operating systems. This assists in maintaining an up-to-date and secure IT environment by ensuring that critical security patches are applied promptly.

Compliance Auditing: Nessus can be used to assess whether an organization's systems and configurations comply with industry standards and regulatory requirements, such as PCI DSS, HIPAA, NIST, CIS, and more. It helps organizations identify gaps and achievecompliance with security best practices.

Web Application Scanning: Nessus can scan web applications to identify vulnerabilities like SQL injection, cross-site scripting (XSS), and other issues that may expose web applications to potential attacks.

Network Inventory and Asset Management: Nessus can provide valuable information about the devices and systems connected to the network, assisting in maintaining an up-to-date inventory and understanding the network's attack surface.

Security Awareness and Training: By generating detailed vulnerability reports, Nessus helps security teams and IT personnel gain insights into the security posture of their systems. This

information can be used to improve security awareness and training programs.

Risk Assessment: Nessus assigns severity levels to identified vulnerabilities, helping organizations prioritize their efforts by focusingon high-risk vulnerabilities first.

Penetration Testing Support: Nessus can complement manual penetration testing efforts by providing an initial overview of potentialvulnerabilities before more extensive manual testing is conducted.

Cloud Infrastructure Security: Many organizations are now using cloud infrastructure. Nessus can assess cloud environments and identify misconfigurations or vulnerabilities that might affect the security of cloud-based resources.

Continuous Monitoring: Nessus can be used to implement continuous monitoring strategies, enabling organizations to regularly assess their security posture and detect changes that may introduce new vulnerabilities.

Threat Intelligence Integration: Nessus can be integrated with threat intelligence feeds to cross-reference scan results with known exploits and threats, providing a more comprehensive view of potential risks.

Nessus is an excellent tool for identifying known vulnerabilities and misconfigurations, it should be part of a comprehensive security strategy that includes regular manual assessments, threat hunting, and ongoing security awareness efforts to address emerging and zero-day threats.

Target WebSite : Bihar Staff Selection Commission (https://bssc.bihar.gov.in/)
Target IP : 164.100.130.68

S. No.	Vulnera bility name	Severi ty	Plugi n	Description	Solution	Business Impact	Port
1	SSL Medium Strength Cipher Suites Supported (SWEET32)	High	42873	he remote host supports the use of SSL ciphers that offer medium strength encryption. Nessus regards medium strength as any encryption that uses key lengths at least 64 bits and less than 112 bits,	Solution Reconfigure the affected application if possible to avoid use of medium strength ciphers.	The SWEET32 vulnerability allows attackers to recover small portions of plaintext when encrypted with 64-bit block ciphers, such as 3DES and Blowfish. This could allow attackers to steal sensitive data, such as credit card numbers, passwords, and trade secrets.	443 / tcp / www

				or else that uses the 3DES encryption suite. Note that it is considerably easier to circumvent medium strength encryption if the attacker is on the same physical network.		Businesses that support medium strength SSL cipher suites are at risk of attack. This could have a number of negative business impacts, including: Data breaches: If attackers are able to exploit the SWEET32 vulnerability, they could steal sensitive data from businesses. This could lead to financial losses, reputational damage, and legal liability. Downtime: If attackers are able to exploit the SWEET32 vulnerability, they could disrupt businesses by causing network outages and performance problems. This could lead to lost productivity and revenue. Compliance violations: Many industries have regulations that require businesses to protect customer data. If businesses suffer a data breach due to the SWEET32 vulnerability, they could face fines and other penalties from regulators.	
2	SSL Certificate Cannot Be Trusted	Medium	51192	The server's X.509 certificate cannot be trusted. This situation can occur in three different ways, in which the chain of trust can be broken, as stated below : - First, the top of the certificate chain sent by the server might not be descended from a known public certificate	Solution Purchase or generate a proper SSL certificate for this service. .	SSL certificate errors, indicating untrusted connections on a website, can severely harm business. Loss of trust, reduced website traffic, lower conversions, compromised data security, SEO penalties, and potential compliance violations can lead to reputational damage and financial losses, necessitating swift resolution to maintain credibility and revenue.	443 / tcp / www

				authority. This can occur either when the top of the chain is an unrecognized, self-signed certificate, or when intermediate certificates are missing that would connect the top of the certificate chain to a known public certificate authority. - Second, the certificate chain may contain a certificate that is not valid at the time of the scan. This can occur either when the scan occurs before one of the certificate's 'notBefore' dates, or after one of the certificate's 'notAfter' dates. - Third, the certificate chain may contain a signature that either didn't match the certificate's information or could not be verified. Bad signatures can be fixed by getting the certificate with the bad signature to be re-signed by its issuer. Signatures that could not be verified are the result of the certificate's issuer using a signing algorithm that Nessus either does not support or does not recognize.			

				If the remote host is a public host in production, any break in the chain makes it more difficult for users to verify the authenticity and identity of the web server. This could make it easier to carry out man-in-the-middle attacks against the remote host.			
3	SSL Certificate Expiry	Medium	15901	This plugin checks expiry dates of certificates associated with SSL- enabled services on the target and reports whether any have already expired.	Solution Purchase or generate a new SSL certificate to replace the existing one.	SSL certificate expiry is a critical issue for businesses. When an SSL certificate expires, it can disrupt secure connections to your website, leading to trust issues, reduced traffic, and potentially lost revenue. It also poses security risks, leaving sensitive data vulnerable to interception. Timely renewal and management are essential to avoid these negative consequences.	443 / tcp / www
4	web.config File Information Disclosure	MEDIUM	121479	The remote web server hosts an application that is affected by an information disclosure vulnerability.	Ensure proper restrictions are in place, or remove the web.config file if the file is not required.	Information disclosure in the "web.config" file can lead to severe negative business impacts. These include potential data breaches, privacy violations, regulatory compliance issues, reputation damage, and loss of customer trust. Such incidents can result in financial losses, legal consequences, and diminished business opportunities. Preventive measures are crucial to mitigate these risks.	425

5	HTTP TRACE / TRACK Methods Allowed	Medium	11213	The remote web server supports the TRACE and/or TRACK methods. TRACE and TRACK are HTTP methods that are used to debug web server connections. Solution	Disable these HTTP methods. Refer to the plugin output for more information.	Allowing HTTP TRACE and TRACK methods, businesses can expose sensitive information, such as internal authentication headers, to attackers. This could lead to data breaches, downtime, and compliance violations.	443 / tcp / www
6	TLS Version 1.0 Protocol Detection	medium	104743	The remote service accepts connections encrypted using TLS 1.0. TLS 1.0 has a number of cryptographic design flaws. Modern implementations of TLS 1.0 mitigate these problems, but newer versions of TLS like 1.2 and 1.3 are designed against these flaws and should be used whenever possible. As of March 31, 2020, Endpoints that aren't enabled for TLS 1.2 and higher will no longer function properly with major web browsers and major vendors. PCI DSS v3.2 requires that TLS 1.0 be disabled entirely by June 30, 2018, except for POS POI terminals (and the SSL/TLS termination points to which they connect) that can be verified as not being susceptible to any known exploits.	Enable support for TLS 1.2 and 1.3, and disable support for TLS 1.0.	TLS version 1.0 is an outdated and insecure protocol. It has a number of known vulnerabilities that can be exploited by attackers to steal sensitive data or disrupt businesses.	443/tcp/www

7	OpenSSL Detection	info	50845	Based on its response to a TLS request with a specially crafted server name extension, it seems that the remote service is using the OpenSSL library to encrypt traffic. Note that this plugin can only detect OpenSSL implementations that have enabled support for TLS extensions (RFC 4366).	It's critical to act quickly to protect the implementation if the remote service looks to be using the OpenSSL library for encryption. Make that OpenSSL is up to date and immediately install any security patches that are available. Review and securely configure OpenSSL, disabling any insecure encryption techniques, and adhere to SSL/TLS recommended practices. To identify potential threats, keep up with security advisories, regularly check for OpenSSL-related vulnerabilities, and install intrusion detection systems. To evaluate and improve the overall security posture, think about performing a thorough	OpenSSL detection reveals vulnerabilities or outdated versions, it may pose significant security risks, potential data breaches, and reputational damage if not addressed promptly.	443 / tcp / www

					security assessment and, if necessary, hiring cybersecurity professionals. Maintain a strong incident response strategy to deal with security lapses or problems involving OpenSSL or your infrastructure as soon as they occur.		
8	HSTS Missing From HTTPS Server	info	84502	The remote HTTPS server is not enforcing HTTP Strict Transport Security (HSTS). HSTS is an optional response header that can be configured on the server to instruct the browser to only communicate via HTTPS. The lack of HSTS allows downgrade attacks, SSL-stripping man-in-the-middle attacks, and weakens cookie-hijacking protections.	Configure the remote web server to use HSTS.	The absence of HTTP Strict Transport Security (HSTS) on an HTTPS server can have various business impacts. This omission can expose the website and its users to security vulnerabilities, potentially leading to data breaches and financial losses. Additionally, it may negatively affect search engine rankings, user trust, and compliance with security standards, resulting in decreased website traffic and potential legal consequences. Immediate implementation of HSTS is essential to enhance security, trust, and regulatory compliance.	443 / tcp / www

9	Nessus SYN scanner	info	11219	This plugin is a SYN 'half-open' port scanner. It shall be reasonably quick even against a firewalled target. Note that SYN scans are less intrusive than TCP (full connect) scans against broken services, but they might cause problems for less robust firewalls and also leave unclosed connections on the remote target, if the network is loaded.	To mitigate vulnerabilities identified by the Nessus SYN scanner, promptly patch and update systems while also implementing robust security controls and continuous monitoring to prevent potential security incidents.	The Nessus SYN scanner's business impact lies in its ability to enhance security by identifying vulnerabilities, potentially saving costs associated with breaches and downtime. It aids in maintaining compliance, improving operational efficiency, and bolstering the company's reputation, providing a competitive edge. Neglecting identified vulnerabilities, however, may lead to legal consequences and data breaches, affecting trust and finances.	443 / tcp / www
10	Traceroute Information	info	10287	Makes a traceroute to the remote host.	Use the 'traceroute' or 'tracert' command to perform a traceroute to the remote host in order to track down intermediate hops, troubleshoot network connectivity problems, and detect potential bottlenecks or route failures. For the purpose of network performance optimization and troubleshootin g, examine the traceroute	The absence of traceroute information can harm businesses by causing increased network downtime and performance problems. This deficiency makes it challenging to pinpoint and rectify network bottlenecks, resulting in decreased productivity and potential revenue loss. Security is compromised as traceroute helps detect and mitigate network attacks. Without it, data breaches and vulnerabilities become more likely. Troubleshooting network problems becomes time-consuming, causing extended downtime and operational disruptions. Consequently, businesses may incur additional expenses, such as hiring external consultants, further impacting profitability. To mitigate these issues, proactive	443 / tcp / www

					findings to identify any areas where packet loss or delays occur.	network monitoring and security measures should be prioritized to maintain network integrity and minimize associated risks and costs.	

Stage 3 Report

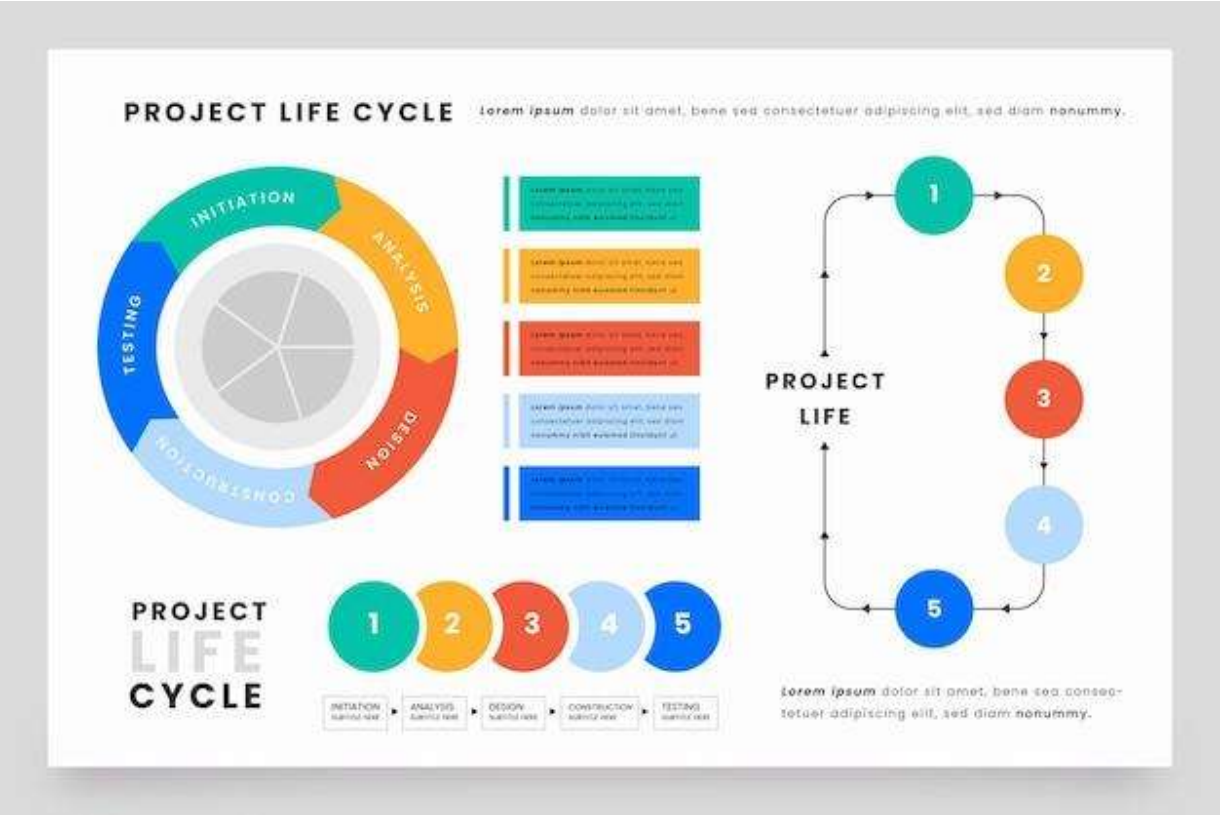
Achieving Proactive Cyber security with SOC and SIEM Integration

- **Soc**

SOC is essential for ongoing network, system, and application monitoring within a company. Potential security problems, such as malware infections, data breaches, and unauthorized access attempts, can be detected and handled by this system. Time is crucial when a security event arises. SOC teams are prepared to react quickly and efficiently to security breaches in order to limit and minimize harm. SOC doesn't just respond to occurrences; it also proactively finds infrastructure gaps and vulnerabilities. Companies may improve their security posture and put precautionary measures in place in the future thanks to this proactive strategy. Security analysts are continuously alert and prepared to respond to new threats at all times because to SOC's round-the-clock monitoring.

- **SOC - cycle**

The SOC cycle, often referred to as the SOC lifespan or SOC workflow, is an ongoing process that specifies the essential processes required in maintaining a company's cyber security. From threat identification to incident response and recovery, it includes all of these processes. The following steps commonly make up the SOC cycle:



Threat Detection and Monitoring:

Network, systems, and application activity are continuously monitored for any security threats and irregularities. utilizing a variety of security tools, such as firewalls, SIEM (Security Information and Event Management) solutions, intrusion detection systems (IDS), and threat intelligence feeds.

Alert Triage and Analysis:

evaluating and ranking security alarms sent by monitoring tools in accordance with their seriousness and possible significance.figuring out if an alert represents a true security issue or a false positive.

Incident Investigation and Response:

If an alert is determined to be a real security incident, the SOC team launches a careful investigation to determine the type and scope of the assault.
assembling information, reviewing log data, and carrying out digital forensics to identify the cause and effects of the occurrence.
starting the incident response procedure, which can include isolating affected systems, containing the threat, and averting future harm.

Incident Containment and Eradication:

Taking urgent steps to stop the incident's propagation throughout the organization's network and to control it.
To return the afflicted systems to a secure state, the malicious components must be eliminated.

Recovery and Remediation:

After the risk is killed, the SOC group centers on reestablishing influenced frameworks and administrations to typical operation.
Actualizing remediation measures to address the root cause of the occurrence and anticipate comparative assaults within the future.

Post-Incident Analysis and Lessons Learned:

Conducting a intensive autopsy investigation of the occurrence to get it how it happened, what was the affect, and what steps were taken to reply.
Identifying areas of change within the organization's security pose and occurrence reaction methods.
Upgrading security arrangements and strategies based on the lessons learned from the occurrence.

Threat Intelligence and Proactive Measures:

Joining risk insights into the SOC workflow to remain ahead of rising dangers and known assault designs.
Proactively chasing for signs of potential dangers and vulnerabilities some time recently they lead to full-fledged security occurrences.

Continuous Monitoring and Improvement:

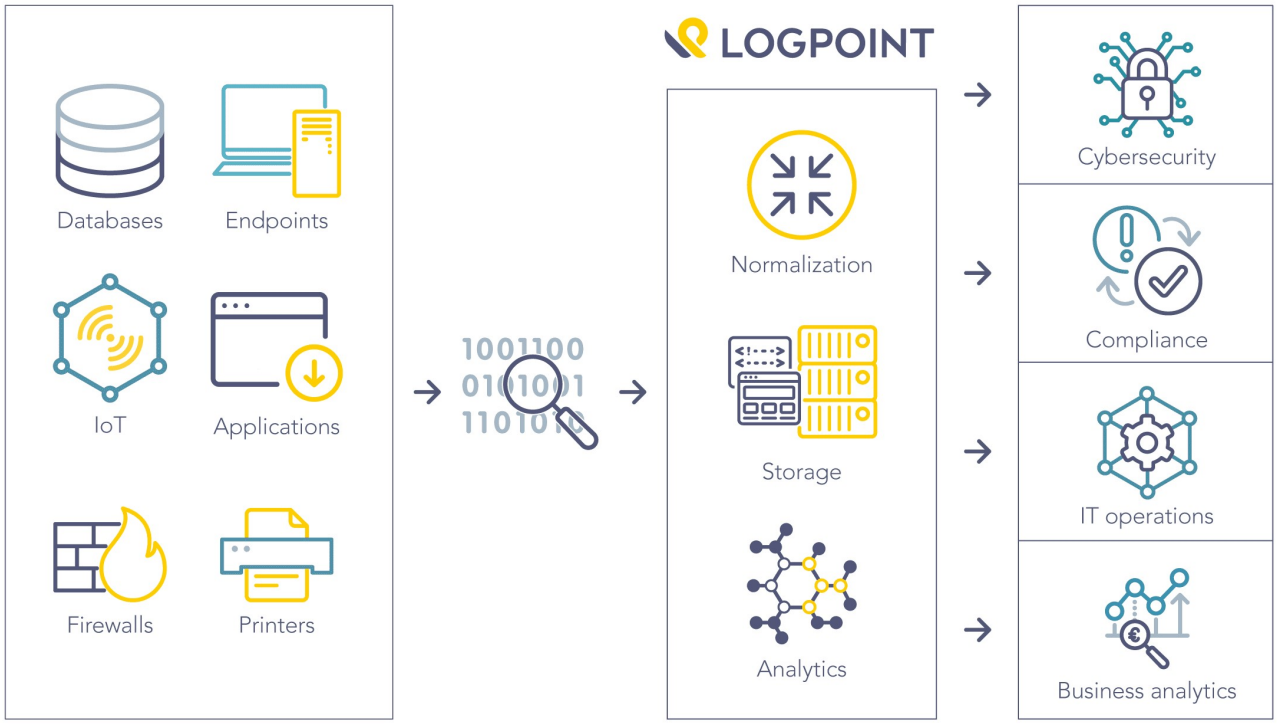
The SOC cycle may be a persistent prepare, with progressing observing, examination, and enhancement of security measures to adjust to the advancing risk scene.

By taking after this cycle, the SOC group can viably identify, react to, and recuperate from security episodes, minimizing the affect of cyber dangers on the organization's resources and information.

- **SIEM**

SIEM, is a security solution that helps organizations recognize and address potential security threats and vulnerabilities before they have a chance to disrupt business operations.

SIEM at a glance



SIEM Security data and occasion management, or SIEM, could be a security arrangement that makes a difference organizations recognize and address potential security dangers and vulnerabilities some time recently they have a chance to disturb trade operations. SIEM frameworks offer assistance venture security groups identify client behavior peculiarities and utilize manufactured insights (AI) to mechanize numerous of the manual forms related with danger discovery and occurrence reaction.

Benefits Notwithstanding of how expansive or little an organization may be, taking proactive steps to screen for and moderate IT security dangers is fundamental. SIEM arrangements advantage undertakings in a assortment of ways and have ended up a critical component in streamlining security workflows.

Real-time threat recognition

SIEM arrangements empower centralized compliance reviewing and detailing over a complete commerce framework. Progressed mechanization streamlines the collection and examination of framework logs and security occasions to decrease inner asset utilization whereas assembly strict compliance announcing benchmarks.

AI-driven automation

Today's next-gen SIEM courses of action facilitated with viable security coordination, mechanization and response (Take off) systems, saving time and resources for IT bunches as they manage exchange security. Utilizing significant machine learning that actually learns from organize behavior, these courses of action can handle complex hazard recognizable verification and event response traditions in basically less time than physical bunches.

Improved organizational efficiency

Since of the made strides perceivability of IT situations that it gives, SIEM can be an basic driver of progressing relationship efficiencies. A central dashboard gives a bound together see of framework information, alarms and notices, empowering groups to communicate and collaborate proficiently when reacting to dangers and security episodes.

Detecting advanced and unknown threats

Considering how rapidly the cybersecurity scene changes, organizations ought to be able to depend on arrangements that can distinguish and react to both known and obscure security dangers. Utilizing coordinates danger insights bolsters and AI innovation, SIEM arrangements can offer assistance security groups react more viably to a wide extend of cyberattacks counting:
Insider dangers - security vulnerabilities or assaults that begin from people with authorized get to to company systems and advanced resources.

Phishing - messages that show up to be sent by a trusted sender, regularly utilized to take client information, login accreditations, monetary data, or other touchy trade data.

Ransomware - malware that locks a victim's information or gadget and debilitates to keep it locked—or worse—unless the casualty pays a emancipate to the assailant.
Disseminated dissent of benefit (DDoS) assaults - assaults that assault systems and frameworks with unmanageable levels of activity from a dispersed arrange of captured gadgets (botnet), debasing execution of websites and servers until they are unusable.
Information exfiltration – robbery of information from a computer or other gadget, conducted physically, or naturally utilizing malware.

Conducting forensic investigations

SIEM arrangements are perfect for conducting computer scientific examinations once a security occurrence happens. SIEM arrangements permit organizations to effectively collect and analyze log information from all of their advanced resources in one put. This gives them the capacity to reproduce past episodes or analyze modern ones to examine suspicious movement and execute more viable security forms.
Surveying and detailing on compliance

Compliance inspecting and announcing is both a fundamental and challenging errand for numerous organizations. SIEM arrangements drastically decrease the asset uses required to oversee this prepare by giving real-time reviews and on-demand announcing of administrative compliance at whatever point required.

Monitoring Users and Applications

With the rise in notoriety of farther workforces, SaaS applications and BYOD (bring your possess gadget) approaches, organizations require the level of perceivability vital to relieve organize dangers from exterior the conventional arrange edge. SIEM arrangements track all organize action over all clients, gadgets, and applications, essentially progressing straightforwardness over the complete foundation and recognizing dangers notwithstanding of where computerized resources and administrations are being gotten to.

Five Predictions For The Future Of SIEM

1. SIEM will become more cloud-native. As more and more organizations move their workloads to the cloud, SIEM vendors will increasingly need to offer cloud-native solutions. This will provide organizations with greater scalability, flexibility, and cost savings.
2. SIEM will embrace artificial intelligence (AI) and machine learning (ML). AI and ML can help SIEM solutions to more effectively detect and respond to threats. For example, AI and ML can be used to identify anomalous behavior, automate threat hunting, and predict future attacks.
3. SIEM will become more integrated with other security tools. SIEM solutions will increasingly need to integrate with other security tools, such as firewalls, intrusion detection systems, and security orchestration, automation, and response (SOAR) platforms. This will help organizations to have a more holistic view of their security posture and to respond to threats more quickly and effectively.
4. SIEM will become more affordable and accessible. As SIEM vendors continue to innovate and improve their products, the cost of SIEM solutions will continue to decrease. This will make SIEM more accessible to smaller organizations and those with limited budgets.
5. SIEM will become more user-friendly. SIEM solutions have traditionally been complex and difficult to use. However, vendors are increasingly focusing on making their SIEM solutions more user-friendly. This is important to ensure that security teams can get the most out of their SIEM solutions.

In addition to these five predictions, I also believe that SIEM solutions will become more predictive and proactive in the future. This will help organizations to prevent attacks before they occur.

Overall, the future of SIEM is bright. SIEM solutions are essential for organizations of all sizes to protect themselves from cyber threats. As technology continues to evolve, SIEM solutions will become more sophisticated and effective.

- **Siem Cycle**

The SIEM cycle is a continuous process of collecting, normalizing, analyzing, and responding to security events. It is a critical part of any organization's security posture, as it can help to detect and respond to threats quickly and effectively.

The SIEM cycle typically consists of the following steps:

1. Data collection: SIEM solutions collect data from a variety of sources, such as network devices, servers, security appliances, and cloud platforms. This data can include logs, events, and alerts.
2. Data normalization: SIEM solutions normalize the collected data into a common format. This makes it easier to analyze the data and identify patterns and trends.
3. Data analysis: SIEM solutions use a variety of techniques to analyze the normalized data, including rule-based correlation, anomaly detection, and machine learning. This analysis helps to identify potential threats and security incidents.
4. Incident response: When a potential threat or security incident is identified, the SIEM solution can generate alerts and notify security personnel. Security personnel can then investigate the incident and take appropriate action, such as blocking malicious traffic, isolating infected systems, or remediating vulnerabilities.

The SIEM cycle is a continuous process, as new data is collected and analyzed all the time. This helps to ensure that organizations are always on the lookout for new threats and security incidents.

Here are some of the benefits of implementing a SIEM solution:

- Improved visibility into security events
- Reduced time to detect and respond to threats
- Improved compliance with security regulations
- Reduced risk of data breaches and other security incidents

SIEM solutions are an essential part of any organization's security posture. They can help organizations to protect their data and systems from cyber threats.

The lifecycle of a Security Information and Event Management (SIEM) solution typically consists of the following phases:

1. Planning and requirements gathering: The first step is to identify the organization's security needs and requirements for a SIEM solution. This includes determining which data sources need to be monitored, what types of threats need to be detected, and how the SIEM solution will be used by the security team.
2. Solution selection and procurement: Once the organization's requirements have been gathered, the next step is to select and procure a SIEM solution. This involves evaluating different SIEM vendors and their products, and choosing the solution that best meets the organization's needs.
3. Deployment and configuration: Once a SIEM solution has been selected, it needs to be deployed and configured. This involves installing the SIEM software and hardware, and configuring the solution to monitor the organization's data sources and generate alerts.
4. Monitoring and analysis: Once the SIEM solution is deployed and configured, it needs to be monitored and analyzed on a regular basis. This involves reviewing the SIEM alerts and dashboards to identify potential threats and security incidents.
5. Incident response: When a potential threat or security incident is identified, the security team needs to investigate and take appropriate action. This may involve blocking malicious traffic, isolating infected systems, or remediating vulnerabilities.
6. Maintenance and tuning: SIEM solutions need to be maintained and tuned on a regular basis to ensure that they are operating effectively and efficiently. This includes updating the SIEM software, adding new data sources, and adjusting the SIEM rules and alerts.

The SIEM lifecycle is a continuous process, as new threats and security incidents emerge all the time. Organizations need to regularly review their SIEM requirements and make adjustments to their SIEM solution as needed.

Here are some additional tips for implementing and managing a SIEM solution:

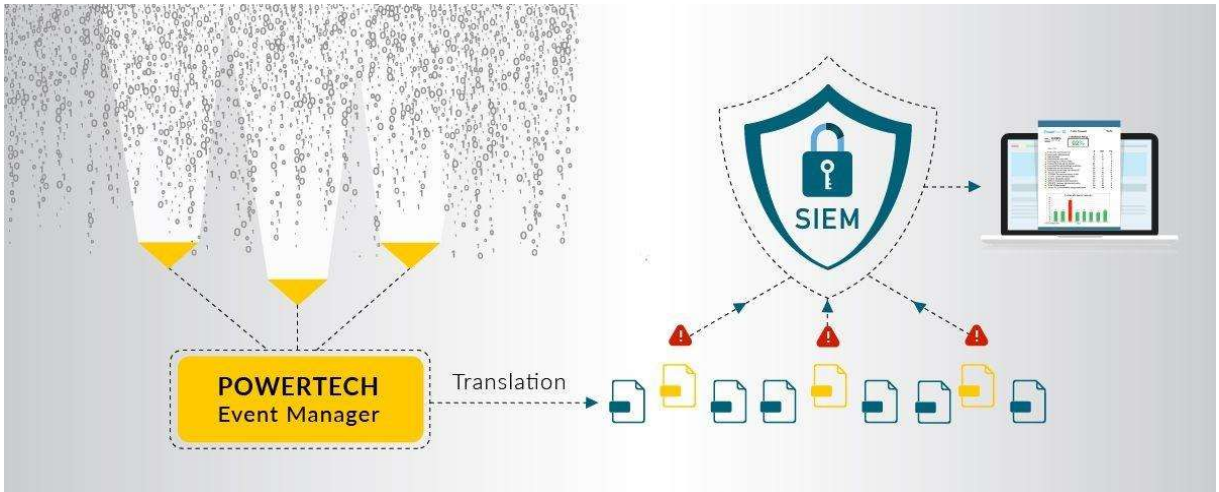
- Start small and scale up as needed. You don't need to implement a full-blown SIEM solution all at once. Start by monitoring a few key data sources and then add more data sources over time.

- Get buy-in from all stakeholders. SIEM solutions are most effective when they are used by the entire security team. Make sure that all stakeholders understand the benefits of SIEM and how it can help to improve the organization's security posture.
- Integrate your SIEM solution with other security tools. SIEM solutions can be more effective when they are integrated with other security tools, such as firewalls, intrusion detection systems, and security orchestration, automation, and response (SOAR) platforms.
- Regularly review and update your SIEM rules and alerts. SIEM rules and alerts need to be regularly reviewed and updated to ensure that they are still effective and efficient.
- Train your security team on how to use the SIEM solution. Security team members need to be trained on how to use the SIEM solution to monitor and analyze security events, and to respond to incidents.

By following these tips, organizations can implement and manage an effective SIEM solution that can help them to protect their data and systems from cyber threats.

Threat Detection

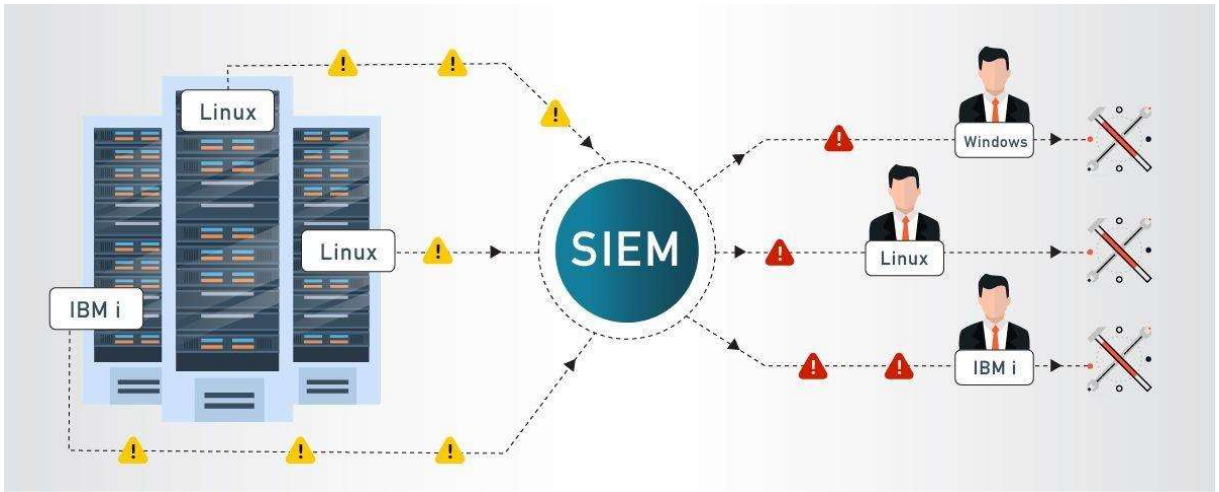
Translation



Prioritization


SIEM
HIGHLIGHTED EVENT
SECURITY THREAT
SECURITY INCIDENT

Escalation


Linux
Linux
IBM i
SIEM
Windows
Linux
IBM i

Analysis

Compliance

- **MISP**

MISP, Malware Data Sharing Stage and Risk Sharing, center functionalities are:
An productive IOC and pointers database, permitting to store specialized and non-technical data approximately malware tests, occurrences, assailants and insights.

Features of MISP, the open source threat sharing platform

MISP, the open source threat sharing platform, has a wide range of features that make it a valuable tool for cybersecurity professionals. Some of the key features include:

- Efficient IoC and indicators database: MISP allows users to store and manage technical and non-technical indicators of compromise (IoCs) and other threat intelligence data in a structured and efficient manner.
- Automatic correlation: MISP can automatically correlate IoCs and other threat intelligence data to identify relationships between malware samples, attack campaigns, and other entities.
- Built-in sharing functionality: MISP makes it easy to share threat intelligence with other organizations and individuals. Users can create and manage sharing groups, and they can also use MISP's built-in support for standard threat intelligence formats such as STIX and OpenIOC.
- Flexible data model: MISP's data model is flexible enough to represent a wide range of threat intelligence data, including IoCs, malware samples, attack campaigns, and actor profiles.
- Intuitive user interface: MISP has an intuitive user interface that makes it easy to create, edit, and manage threat intelligence data.

In addition to these core features, MISP also offers a number of other features that make it a powerful tool for cybersecurity professionals, such as:

- Workflow automation: MISP supports workflow automation, which allows users to automate tasks such as event tagging, correlation, and sharing.
- Integrations: MISP integrates with a wide range of other cybersecurity tools, such as security information and event management (SIEM) systems and intrusion detection systems (IDS).
- Community support: MISP has a large and active community of users who contribute to the development and support of the platform.

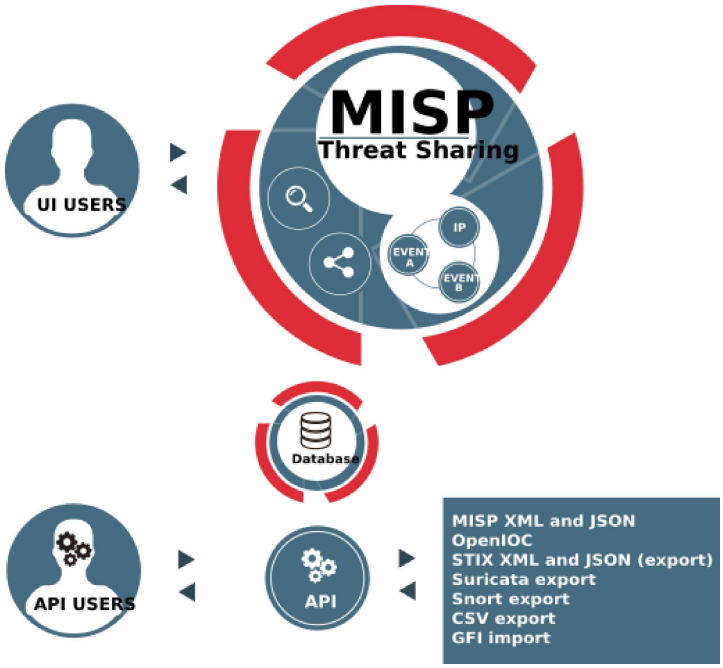
Overall, MISP is a comprehensive and powerful threat sharing platform that can be used by organizations of all sizes to improve their cybersecurity posture.

Here are some examples of how MISP can be used:

- Share threat intelligence with other organizations: MISP can be used to share threat intelligence with other organizations, such as industry peers, government agencies, and information sharing and analysis centers (ISACs). This can help organizations to stay informed about the latest threats and to coordinate their response to cyberattacks.

- Detect and prevent cyberattacks: MISP can be used to detect and prevent cyberattacks by correlating IoCs and other threat intelligence data with security logs and other data sources. This can help organizations to identify suspicious activity and to take action to block attacks before they can succeed.
- Investigate cyberattacks: MISP can be used to investigate cyberattacks by collecting and analyzing threat intelligence data. This can help organizations to identify the attackers, their motivations, and the impact of the attack.

MISP is a valuable tool for any organization that is serious about cybersecurity. It is a free and open source platform, and it is supported by a large and active community.



- **Your college network information**

  Bharati Vidyapeeth Deemed to be University ,Institute of Management and Research,New Delhi

  A total of 3 labs and approximately 400 approx systems are available.

- **How you think you deploy soc in your college**

Deploying a Security Operations Center (SOC) in an organization involvescareful planning, resource allocation, and a structured approach. Here arethe key steps to deploy a SOC:

Assessment and Requirements Gathering:

- Conduct a thorough assessment of the organization's currentcybersecurity posture, including existing security measures, tools, and processes.
- Identify the specific security challenges, risks, and compliancerequirements that a SOC will address.
- Define the goals and objectives of the SOC deployment to alignwith the organization's overall security strategy.

Budget and Resource Allocation:

- Determine the budget and resource requirements forestablishing and maintaining the SOC.
- Allocate personnel, hardware, software, and other necessaryresources to support the SOC operations.

Build a Skilled Team:

- Recruit or assign skilled security professionals to form the SOCteam.
- The team should include security analysts, incident responders,threat hunters, and SOC management personnel.

Infrastructure and Technology Setup:

- Establish the physical or virtual infrastructure for the SOC,including servers, network equipment, and storage.
- Deploy the required security technologies, such as SIEM, intrusion detection and prevention systems (IDS/IPS), firewalls,endpoint protection, and threat intelligence feeds.

Integration and Data Collection:

- Integrate security tools and systems with the SIEM to centralizelog and event data collection.
- Ensure that critical data sources, such as firewalls, servers,network devices, and applications, are sending logs to the SIEM.

Establish Processes and Procedures:

- Define standard operating procedures (SOPs) for various SOCactivities, including incident handling, response protocols, escalation procedures, and communication guidelines.
- Implement incident categorization and prioritizationmechanisms.

Implement Monitoring and Alerting:

- Configure the SIEM to generate real-time alerts based onpredefined correlation rules and security use cases.
- Fine-tune alerting thresholds to minimize false positives andfocus on critical alerts.

Incident Response and Escalation:

- Develop a formal incident response plan that outlines the stepsto be taken in the event of a security incident.
- Define roles and responsibilities for incident handling, andestablish a clear escalation path for severe incidents.

Training and Skill Development:

- Provide comprehensive training to the SOC team on the use ofsecurity tools, incident analysis, threat hunting, and incident response best practices.
- Keep the team updated on the latest cybersecurity trends,attack techniques, and relevant certifications.

Testing and Continuous Improvement:

- Conduct regular tabletop exercises and simulated cyber attackscenarios to test the SOC team's response capabilities.
- Use the insights gained from testing to improve and refine the SOC'sprocesses and procedures.

Monitoring and Reporting:

- Continuously monitor the SOC's performance and effectiveness indetecting and responding to security incidents.

- Generate regular reports and metrics to measure the SOC'sperformance and communicate its value to stakeholders.

Integration with IT and Business Functions:

- Foster collaboration between the SOC and other IT and business unitsto ensure a coordinated approach to security.
- Engage with executive management and board members to gainsupport and buy-in for SOC initiatives
- Deploying a SOC is an ongoing process that requires adaptability and continuous improvement. Regular assessments, training, and updatesare essential to ensure that the SOC remains effective in addressing the organization's evolving security challenge

- **Threat intelligence**

Threat intelligence is data that is collected, processed, and analyzed to understand a threat actor's motives, targets, and attack behaviors. Threat intelligence enables us to make faster, more informed, data-backed security decisions and change their behavior from reactive to proactive in the fight against threat actors.

Threat intelligence is important for the following reasons:

- sheds light on the obscure, empowering security groups to form superior choices
- empowers cyber security partners by uncovering ill-disposed thought processes and their strategies, procedures, and methods (TTPs)
- helps security experts superior get it the risk actor's decision-making handle
- empowers trade partners, such as official sheets, CISOs, CIOs and CTOs; to contribute admirably, moderate hazard, gotten to be more productive and make speedier choices
- From top to bottom, threat intelligence offers unique advantages to everymember of a security team, including:

- Sec/IT Investigator
- SOC
- CSIRT
- Intel Examiner
- Executive Administration

- **Incident response**

Occurrence reaction may be a term utilized to portray the method by which an organization handles a information breach or cyberattack, counting the way the organization endeavors to oversee the results of the assault or breach (the "incident"). Eventually, the objective is to viably oversee the occurrence so that the harm is constrained and both recuperation time and costs, as well as collateral harm such as brand notoriety, are kept at a least.

Organizations ought to, at least, have a clear occurrence reaction arrange in put. This arrange ought to characterize what constitutes an occurrence for the company and give a clear, guided handle to be taken after when an occurrence happens. Furthermore, it's prudent to indicate the groups, representatives, or pioneers capable for both overseeing the generally occurrence reaction activity and those entrusted with taking each activity indicated within the occurrence reaction arrange.

Who Handles Incident Responses?

Regularly, occurrence reaction is conducted by an organization's computer occurrence reaction group (CIRT), moreover known as a cyber occurrence reaction group. CIRTs more often than not are comprised of security and common IT staff, together with individuals of the lawful, human resources, and public relations divisions. As Gartner depicts, a CIRT may be a gather that "is capable for reacting to security breaches, infections, and other possibly disastrous episodes in ventures that confront critical security dangers. In expansion to specialized pros able of dealing with particular dangers, it ought to incorporate specialists who can direct venture administrators on fitting communication within the wake of such incidents."

The six steps for effective incident response are:
Preparation: This involves developing an incident response plan, identifying key roles and responsibilities, and ensuring that the necessary tools and resources are in place.
Identification: This involves detecting and identifying security incidents. This can be done through monitoring logs, systems, and networks, as well as through user reports.
Containment: This involves taking steps to prevent the incident from spreading or causing further damage. This may involve isolating affected systems, blocking malicious traffic, and changing passwords.
Eradication: This involves removing the threat from the organization's systems and networks. This may involve removing malware, patching vulnerabilities, and restoring data from backups.
Recovery: This involves restoring the organization's systems and networks to normal operation. This may involve rebuilding systems, restoring data, and communicating with affected stakeholders.
Lessons learned: This involves reviewing the incident response process and identifying areas for improvement. This information can be used to update the incident response plan and ensure that the organization is better prepared to respond to future incidents.

It is important to note that these steps should be followed in a flexible manner, depending on the specific nature of the incident. For example, in some cases, it may be necessary to start with eradication before containment, or to overlap multiple steps.
Here are some additional tips for effective incident response:
Communicate early and often. It is important to communicate with stakeholders throughout the incident response process. This includes providing updates on the status of the incident, as well as any recommendations for mitigating the impact of the incident.
Be proactive. Don't wait for an incident to happen before you start responding. By proactively identifying and addressing potential risks, you can reduce the likelihood of a serious incident occurring.
Learn from your mistakes. Every incident is an opportunity to learn and improve your incident response process. Review each incident carefully and identify areas where you can improve.
By following these tips, organizations can improve their ability to respond to security incidents quickly and effectively. This can help to minimize the impact of incidents on the organization's business operations and reputation.

- **Qradar & understanding about tool**

The operation of the QRadar security intelligence platform consists of three layers, and applies to any QRadar deployment structure, regardless of its size and complexity. The following diagram shows the layers that make up

the QRadar architecture.

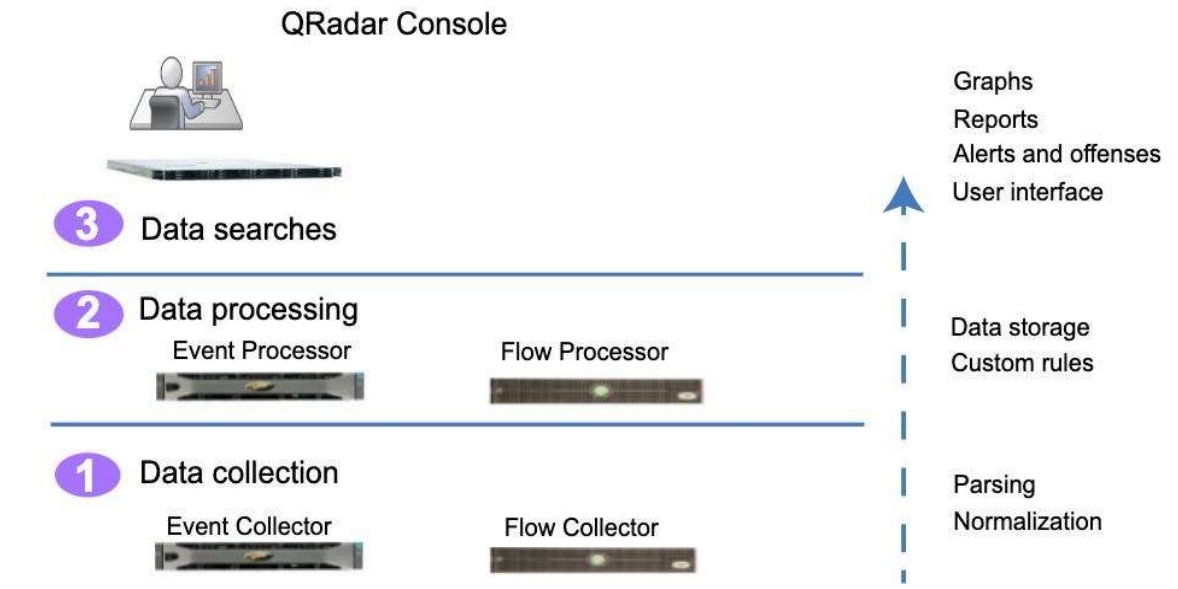


Figure 1. QRadar architecture

The QRadar architecture functions the same way regardless of the size or number of components in a deployment. The following three layers that are represented in the diagram represent the core functionality of any QRadar system.

Data collection

Data collection is the first layer, where data such as events or flows is collected from your network. The All-in-One appliance can be used to collectthe data directly from your network or you can use collectors such as QRadar Event Collectors or QRadar QFlow Collectors to collect event or flow data. The data is parsed and normalized before it passed to the processing layer. When the raw data is parsed, it is normalized to present it in a structured and usable format.

The core functionality of QRadar SIEM is focused on event data collection, and flow collection.

Event data represents events that occur at a point in time in the user's environment such as user logins, email, VPN connections, firewall denys, proxy connections, and any other events that you might want to log in yourdevice logs.

Flow data is network activity information or session information between two hosts on a network, which QRadar translates in to flow records. QRadartranslates or normalizes raw data in to IP addresses, ports, byte and packetcounts, and other information into flow records, which effectively represents a session between two hosts. In addition to collecting flow information with a Flow Collector, full packet capture is available with the QRadar Incident Forensics component.

Data processing

After data collection, the second layer or data processing layer is where event data and flow data are run through the Custom Rules Engine (CRE), which generates offenses and alerts, and then the data is written to storage.

Event data, and flow data can be processed by an All-in-One appliance without the need for adding Event Processors or Flow Processors. If the processing capacity of the All-in-One appliance is exceeded, then you might need to add Event Processors, Flow Processors or any other processing appliance to handle the additional requirements. You might also need more storage capacity, which can be handled by adding Data Nodes.

Other features such as QRadar Risk Manager (QRM), QRadar Vulnerability Manager (QVM), or QRadar Incident Forensics collect different types of dataand provide more functions.

QRadar Risk Manager collects network infrastructure configuration, andprovides a map of your network topology. You can use the data to manage risk by simulating various network scenarios through altering configurationsand implementing rules in your network.

Use QRadar Vulnerability Manager to scan your network and process the vulnerability data or manage the vulnerability data that is collected from

other scanners such as Nessus, and Rapid7. The vulnerability data that is collected is used to identify various security risks in your network.

Use QRadar Incident Forensics to perform in-depth forensic investigations, and replay full network sessions.

Data searches

In the third or top layer, data that is collected and processed by QRadar is available to users for searches, analysis, reporting, and alerts or offense investigation. Users can search, and manage the security admin tasks for their network from the user interface on the QRadar Console.

In an All-in-One system, all data is collected, processed, and stored on the All-in-One appliance.

In distributed environments, the QRadar Console does not perform event and flow processing, or storage. Instead, the QRadar Console is used primarily as the user interface where users can use it for searches, reports, alerts, and investigations.

QRadar components
Use IBM QRadar components to scale a QRadar deployment, and to managedata collection and processing in distributed networks.

QRadar maximum EPS certification methodology
IBM QRadar appliances are certified to support a certain maximum events per second (EPS) rate. Maximum EPS depends on the type of data that is processed, system configuration, and system load.

QRadar events and flows
The core functions of IBM QRadar SIEM are managing network security by monitoring flows and events.

Conclusion

Stage 1 :- what you understand from Web application testing .

The outcome of web application testing is to ensure that the application is secure, reliable, and meets its intended functionality. The testing process aims to identify and address potential vulnerabilities, bugs, and usability issues that could impact the application's performance and user experience.The specific outcomes of web application testing include:

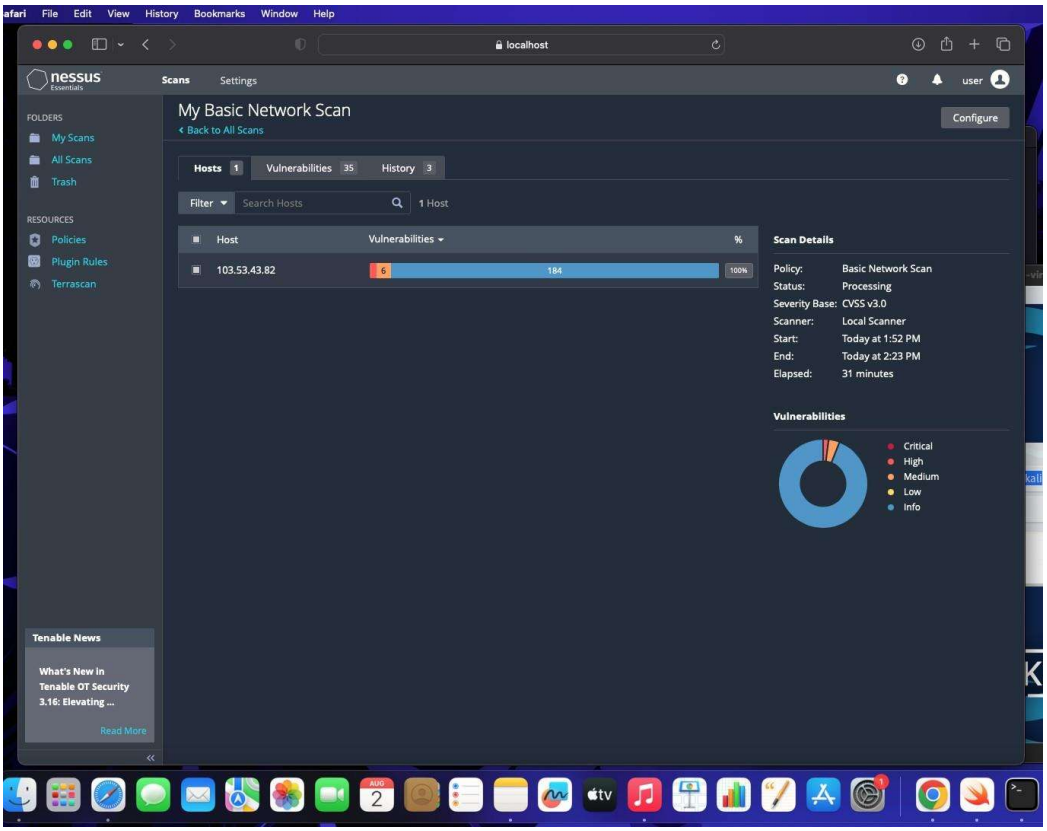
- Identification of Security Vulnerabilities
- Bug Detection and Resolution
- Validation of Functional Requirements
- Usability and User Experience Evaluation
- Performance and Load Testing Results
- Compatibility Testing Insights
- Accessibility Compliance
- Security Compliance and Risk Mitigation
- Optimization Recommendations
- Enhanced Quality Assurance
- Increased Customer Confidence
- Compliance with Regulatory Requirements

In summary, the outcome of web application testing is an enhanced, secure, and reliable web application that meets user expectations and delivers a smooth and seamless experience to its users. It provides developers and stakeholders with the confidence that the application is ready for deployment and can withstand potential security threats and performance challenges.

Stage 2 :- what you understand from the nessus report.

Nessus is a vulnerability scanning tool used to identify and report security issues in computer systems and networks.

The outcome of a Nessus report will depend on the specific target scanned and the vulnerabilities found. Typically, a Nessus report will list the identified vulnerabilities along with their severity levels, detailed descriptions, and recommendations for remediation. The severity levels are usually categorized as critical, high, medium, and low, depending on the potential impact and exploitability of the vulnerability.



Stage 3 :- what you understand from SOC / SEIM / Qradar Dashboard.

SOC (Security Operations Center): The primary purpose of a SOC is to monitor and defend an organization's IT infrastructure against security threats and incidents. SOC analysts use various tools and technologies to detect, analyze, and respond to security events in real-time. The expected outcomes of a well-functioning SOC include:

a. **Improved Threat Detection**: SOC analysts monitor network traffic, log data, and security alerts to identify potential threats and security incidents promptly.

b. **Faster Incident Response**: With a SOC in place, organizations can respond quickly to security incidents and mitigate the impact of breaches orattacks.

c. **Enhanced Security Posture:** A proactive SOC helps organizations implement robust security measures and continually improve their overall security posture.

d. **Reduced Downtime and Losses:** Detecting and mitigating security incidents swiftly can minimize downtime and financial losses resulting from cyber-attacks.

SIEM (Security Information and Event Management): SIEM is a technology that helps collect, analyze, and correlate log data from various sources within an organization's IT environment. The main goal of SIEM is to provide a centralized platform for real-time monitoring, threat detection, and incident response. The expected outcomes of using a SIEM system are:

a. Centralized Log Management: SIEM aggregates log data from diverse sources, making it easier for analysts to access and analyze information from a single dashboard.

b. Early Threat Detection: SIEM tools can identify patterns and anomalies in the data, enabling early detection of security incidents and potential breaches.

c. Simplified Incident Investigation: SIEM allows analysts to correlate events from different sources, providing a comprehensive view of security incidents for faster and more accurate investigations.

d. Compliance and Reporting: SIEM can help organizations meet regulatory compliance requirements by generating security reports andaudits.

QRadar Dashboard (IBM QRadar): QRadar is a popular SIEM solution provided by IBM. The QRadar dashboard is a critical component of the QRadar system, offering a visual representation of security-related data andinsights. The expected outcomes of using QRadar and its dashboard include:

a. Real-Time Visibility: The QRadar dashboard provides real-time visibility into security events and incidents, enabling analysts to respond promptly toemerging threats.

b. Customizable Visualizations: Analysts can customize the dashboard to display relevant information, such as top threats, network traffic, or securityincidents.

c. Threat Intelligence Integration: QRadar integrates with various threat intelligence feeds, enhancing its ability to detect and respond to advanced threats.

d. Incident Response Automation: The QRadar dashboard can be integrated with automation tools to streamline incident response processes.

It's important to note that the effectiveness of these security measures relies on the expertise of the security team, the quality of data collected, and the organization's commitment to maintaining a strong security posture. Continuous monitoring, analysis, and improvement are crucial for maximizing the outcomes and benefits of SOC, SIEM, and QRadar implementations.

Future Scope

Stage 1 :- Future scope of web application testing

The future scope of web application testing will be shaped by technological advancements, changing user expectations, and the need to ensure security and reliability in an increasingly interconnected digital world. Testing professionals will need to adapt to these trends and continuously upgrade their skills to meet the evolving demands of web application testing.

Stage 2 :- Future scope of testing process you understood.

The future scope of the testing process will see increased automation, integration with emerging technologies, and a focus on ensuring quality, security, and performance in the ever-evolving software landscape. Testing professionals will need to adapt to these changes and continuously upgrade their skills to stay relevant in the dynamic field of software testing

Stage 3 :- future scope of SOC / SEIM

The future scope of SOC (Security Operations Center) and SIEM (Security Information and Event Management) is expected to expand and evolve in response to the changing cybersecurity landscape and technological

advancements. The future scope of SOC and SIEM will involve increased automation, advanced threat detection, integration with emerging technologies, and a proactive approach to cybersecurity. Organizations will need to invest in the latest tools and technologies while continuously developing the expertise of their cybersecurity teams to stay ahead of evolving threats.

Topics explored :-

Introduction to cybersecurity, Growth of cybersecurity, Data sanity, Cloud service and cloud security, Data breach, Firewall, Antivirus, Digital ecosystem, Data protection, Types of cyber attacks, Essential terminology, Introduction to networking, Web APIs, web hooks, Web shell concepts, Vulnerability stack,OWASP top 10 applications, QRadar, SOC, SIEM

Tools explored :-

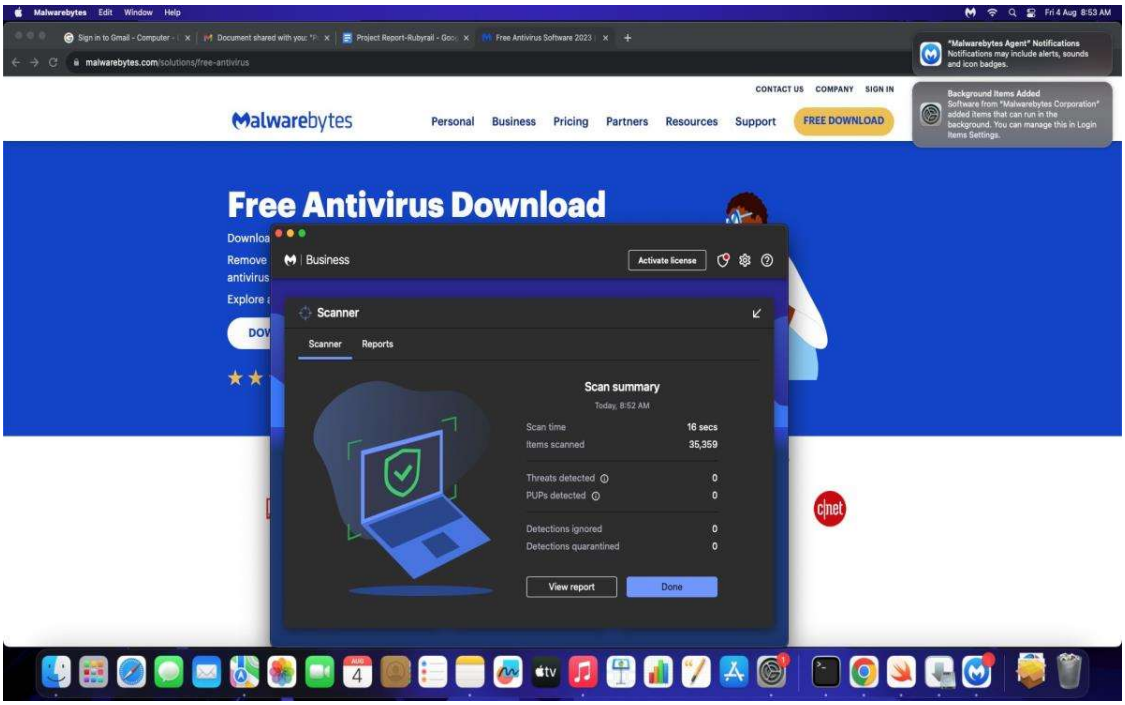
Nessus, cybermap.kaspersky.com, thehackersone.com, chaptgpt,wepik.com (AI image editor), Gamma (AI based PPT), OWASP top 10 vulnerabilities(2021), thehackersnews.com, CWE, exploitDB, virtual box, live websites-bugcrowd, nslookup.io, OSINT framework, mitre framework, IBM fix central, QRadar Installation, mobaxterm, tools-nmtui, Nmap, sqlmap, Identify fixes-wincollect agent, metasploitable, malware bytes, Linux cheatsheet, QRadar for SOC dashboard presentation, Kali linux

MALWAREBYTES

FREE DOWNLOADS

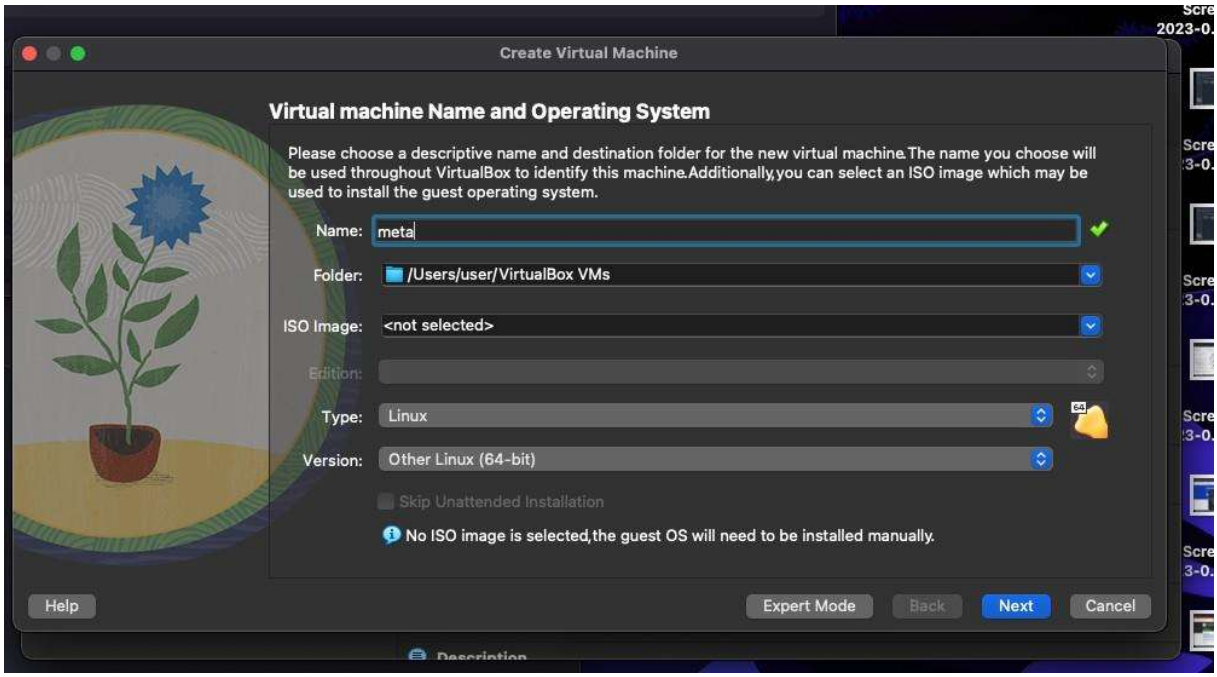
Free Antivirus Software 2023

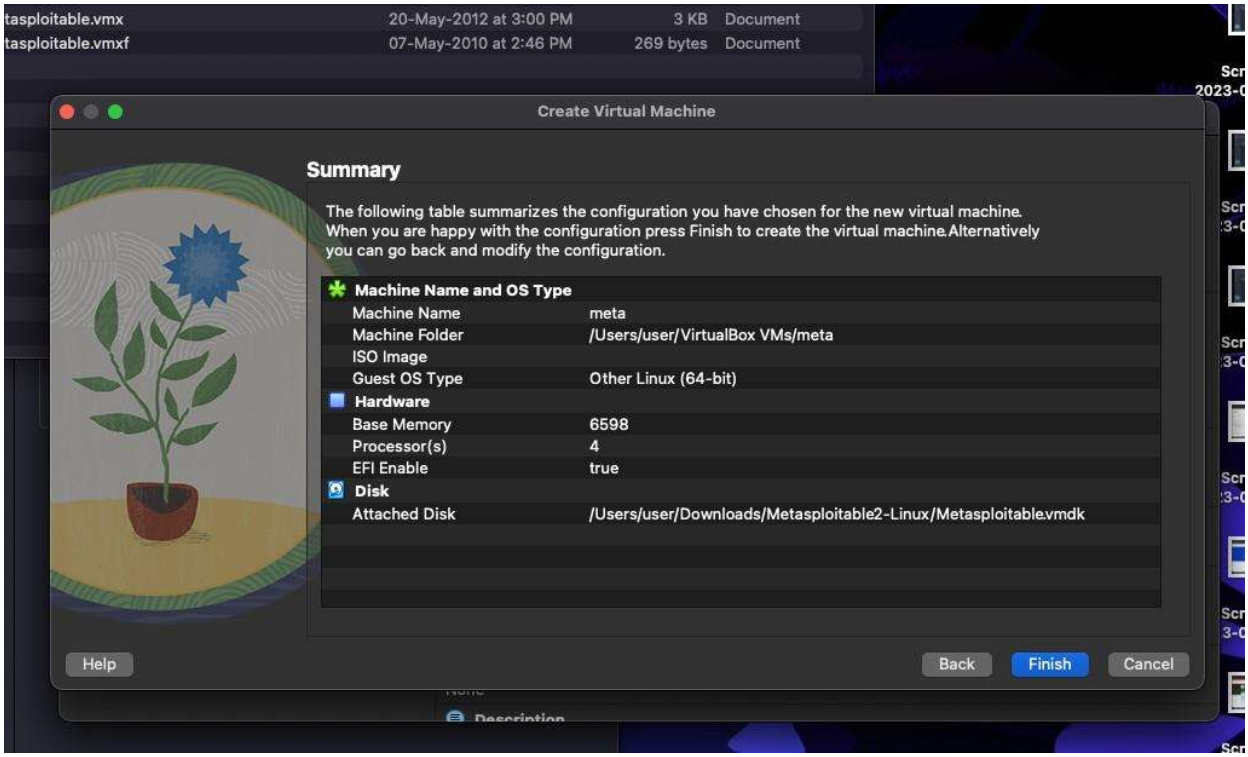
Looking for free antivirus and malware removal? Scan and remove viruses and malware for free. Malwarebytes free antivirus includes multiple layers of malware-crushing tech. Our anti-malware finds and removes threats like viruses, ransomware, spyware, adware, and Trojans.



Metasploitable2 (Linux) is a framework which is combination Nmap and exploit database.

Metasploitable is an intentionally vulnerable Linux virtual machine. This VM can be used to conduct security training, test security tools, and practice common penetrationtesting techniques.





- Base memory 6000
- Processor 4
- Enable FPT
- Use an existing hard disk file

- File folder - click add button
- Select downloads folder and metasploitable 2 linux-> metaspoiltable 2 vmdk

Metaspoilt

```
┌──(kali㉿kali)-[~]
└─$ msfconsole
       =[ metasploit v6.3.4-dev                           ]
+ -- --=[ 2294 exploits - 1201 auxiliary - 409 post       ]
+ -- --=[ 968 payloads - 45 encoders - 11 nops            ]
+ -- --=[ 9 evasion                                       ]

Metasploit tip: View a module's description using info, or
the enhanced version in your browser withinfo -d
Metasploit Documentation: https://docs.metasploit.com/
```

msf6 > search exploit

Matching Modules
==========

#	Name	Disclosure Date	Rank	Check	Description
0	auxiliary/dos/http/cable_haunt_websocket_dos	2020-01-07	normal	No	"Cablehaunt" Cable Modem WebSocket DoS
1	exploit/linux/local/cve_2021_3493_overlayfs	2021-04-12	great	Yes	2021 Ubuntu Overlayfs LPE
2	exploit/windows/ftp/32bitftp_list_reply	2010-10-12	good	No	32bit FTP Client Stack Buffer Overflow
3	exploit/windows/tftp/threectftpsvc_long_mode	2006-11-27	great	No	3CTftpSvc TFTP Long Mode Buffer Overflow
4	exploit/windows/ftp/3cdaemon_ftp_user	2005-01-04			

Testing Metaspoilt using Kalilinux

> nmap -A 10.5.174.221

msfg> use auxiliary/admin/http/tomcat_ghostcat

>show options

>set RHOSTS 10.5.174.221

>run

>exploit

>search vsftp

>run

>exploit

> use modulename

>ls - lists all files from other terminal from the given IP