Essential Guide

Security Information and Event Management (SIEM)

Detect what matters, investigate holistically, and respond rapidly.

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Today's threat landscape poses significant challenges for security teams. Analyzing data noise and trying to gain visibility across hybrid cloud and on-premises environments — all while being inundated with vast amounts of data from various security and IT sources — can become overwhelming. It's difficult to prioritize major vulnerabilities before they escalate, while addressing minor security issues at the same time. Turning volumes of raw data into actionable insights is key.

Lack of context makes threat detection even harder. According to the SANS Institute 2023 SOC Survey, the primary obstacle to a SOC's success is the immense lack of context related to security events. With the large number of alerts that analysts must take action on, it can be challenging to distinguish high-priority threats without it. Plus, an estimated average of 41% of alerts are ignored because analysts don't have the bandwidth.

Security teams are also burdened with managing up to 25+ different security tools for actions across detection, investigation, and response. As a result, analysts spend an average of three hours on alert investigations. Risks today include detecting sophisticated AI-driven threat campaigns, as well as ensuring compliance with evolving regulations across geographies. All of this makes it difficult for organizations to draw insights from and take action on their data — it's too time consuming and resource intensive. To enhance SOC efficiency, analysts must be equipped with a streamlined workflow experience that boosts productivity. Ensuring security analysts have access to a SIEM solution that provides the foundation to unify detection, investigation, and response to threats will bolster their confidence and efficacy in managing security risks.

A SOC of the future is a resilient SOC that fosters a collaborative and proactive cybersecurity approach with a modern technology foundation. The core of the SOC of the future is a unified threat detection, investigation, and response (TDIR) platform, representing the real-world requirements for how tools contribute to the SOC's mission and strategy, providing integration and efficient process execution. The foundation for the unified TDIR platform is a modern SIEM.

This essential guide explores what a SIEM solution is, what it does, and how to find the right SIEM for your organization.

What is a SIEM?

A SIEM solution is like a pilot's radar system. Security analysts steer the security operation center (SOC) and need radar to safely navigate what's around them, what's ahead, and what might be hidden out of view. A SIEM solution is a security platform that helps SOC analysts see across enterprise IT and spot security threats hiding in the corners of the systems they protect. Without it, they're flying blind.

While security applications, network security, and system software can catch and log isolated attacks and anomalous behavior, today's most serious threats are distributed and can't be caught with these tools alone. Hackers attack in unison across multiple systems and use advanced evasion techniques to avoid detection. Attackers also take advantage of stressful situations to exploit weaknesses — such as an immediate shift to remote work during a global pandemic. In that example, SOC teams were tasked with keeping systems secure, but without in-person access to the security tools and processes they'd come to rely on.

Situations like these are why a modern SIEM solution is more important than ever. Without the right SIEM, cyberattacks can fester and turn into catastrophic incidents that even the best SOC analysts can't see coming. And by the time they discover a vulnerability, like a ransomware attack, all that's left to do is damage control.

What does a SIEM do?

Gartner defines a SIEM solution as a tool that "aggregates the event data that is produced by monitoring, assessment, detection, and response solutions deployed across application, network, endpoint, and cloud environments."

A SIEM solution helps SOC analysts work smarter. It ingests event logs and provides a single view of their data, with more insight and visibility into their security posture.

A modern SIEM can solve three major security challenges:

- Analyzing data noise and growing data volumes
- Lack of contextualized threat detection
- Security and threat complexity

So how do organizations solve those challenges today without a SIEM solution? Historically, they've used "traditional" solutions, various point solutions, or even built their own, which takes time, money, and resources.

How traditional SIEMs fall short

Traditional SIEMs typically have dated architectures that use an SQL database with a fixed schema. These databases can become a single point of failure or suffer from scale and performance limitations.

Lack of unified visibility

The inability to seamlessly ingest, normalize, and analyze data from any source limits a traditional SIEM's detection, investigation, and response times. Additionally, the data ingestion can be a massively laborious process or very expensive.

Inability to reduce alert volumes

Traditional SIEMs cannot decrease the volumes of alerts analysts address. In fact, they often bring more alerts and false positives, causing an increased workload and noise that makes it more difficult to discern high-priority threats.

Inadequate out-of-the-box detections

Security analysts must have access to top-tier detections that can be integrated into the SOC to find and remediate threats faster.

Limited deployment

Traditional SIEMs are often limited to on-premises or cloud deployments. Security practitioners must have the flexibility to use cloud, multi-cloud, on-premises or hybrid environments.

Little or no unification of workflows

Analysts must act fast to address security incidents, but having multiple tools across detection, investigation, and response slows them down.

Closed ecosystem

Traditional SIEM solutions often lack the ability to integrate with other tools. Customers are forced to use what's included in the existing SIEM or spend more on custom development and professional services.

Five essential SIEM capabilities

1. Comprehensive data management and federation

SOC success demands a platform that can transform raw data into actionable insights. The ability to ingest, normalize, and analyze data from any enterprise source ensures analysts have the visibility to find threats before they cause costly damage to the organization. Whether deployed on-premise, in the cloud or hybrid, the SIEM must offer continuous monitoring and correlation across security tools at scale.

2. Curated detections

Out-of-the box detections that align to widely-used industry frameworks enable analysts to detect and identify threats within their networks. This provides the support they need to address sensitive threats, as well as context around varying tactics, techniques and procedures (TTPs) observed.

3. Alert prioritization

When it comes to alert triage, alert prioritization is a SOC analyst's best friend. It addresses the ongoing struggle of alert overload by ensuring analysts know which events need attention fast. The context around incident severity ensures that analysts are investigating what matters most instead of wasting time on false positives.

4. Visualizations and dashboards

Intuitive, visually-compelling dashboards that provide full environment visibility improve incident investigation and response to keep an organization's security posture up to date. They increase productivity and reduce mean time to response (MTTR) by providing a more comprehensive view of security incidents and severity levels.

5. Unify threat detection, investigation, and response

Coordinated workflows across detection, investigation and response facilitate repeatable, automated SOC processes and battle overwhelming data volumes, alert storms, and manual tasks. Accelerated investigations with threat intelligence management, providing relevant and normalized intelligence so that analysts gain more context around risk and threats targeting the organization.

Common Use Cases of SIEM

A modern SIEM helps teams search, monitor and investigate events. It provides visibility across your entire environment for accurate threat detection and a more resilient organization. Security teams can achieve impactful results using workflows for:

Security monitoring

Real-time security monitoring ensures that threats are being detected, investigated, and analyzed for faster response. Ingest data from any source to gain end-to-end visibility across your environment and to make better, data-centric decisions to protect and reduce risk. Enhance your attack surface coverage to include on-premises, hybrid, and multi-cloud environments

Incident management

Determine root cause and easily search for evidence of an incident using fast, flexible search and reporting. This supports analysts throughout an investigation — from incident identification and detection through post-incident analysis.

Compliance

Collect, search, monitor, and analyze data using a centralized solution to meet compliance requirements, and quickly identify your organizational gaps against regulations with automated compliance tasks and customized reports to ease the burden of audits. Insight across all IT/OT resources and security controls helps clear compliance and pass audits with minimal effort, regardless of mandate or regulatory framework. The SOC can meet increasingly complex compliance requirements using capabilities such as monitoring, reviewing, and retaining logs or generating ad-hoc reports to address auditor questions.

Enter Splunk

Splunk has paved the way in advancing SIEM and security analytics. Our innovations have helped thousands of customers outpace adversaries. As the market-leading SIEM and security analytics solution provider, Splunk has been named a Leader for 10 consecutive times in the 2024 Gartner® Magic Quadrant™ for Security Information and Event Management. In addition to this recognition, Splunk was ranked as the #1 SIEM solution in all three Use Cases in the 2024 Gartner® Critical Capabilities for Security Information and Event Management report. Further, Splunk has also been named a Leader in the IDC MarketScape: Worldwide SIEM for Enterprise 2024 Vendor Assessment (doc #US49029922, September 2024). Only Splunk has been named a leader across Gartner, IDC and Forrester, earning its singular distinction for the hat trick achievement.

Splunk Enterprise Security is the trusted choice for SOCs around the globe. Its powerful capabilities enable you to realize comprehensive visibility, empower accurate detection with context, and fuel operational efficiency. Powered by an extensible platform and assistive AI-driven capabilities, Splunk Enterprise Security ensures analytics at scale for continuous security monitoring and cost-effective data optimization. This foundation enables you to detect what matters, investigate holistically, and respond rapidly.

This seamless integration of use cases and workflows marks the dawn of a new type of SIEM — one where analysts have everything they need at a click of a button and within one single work surface. That way, they can respond to threats without breaking a sweat (or toggling between tools).

Realize comprehensive visibility

Security teams are in a tough spot, trying to gain visibility across hybrid cloud and on-premises, incorporating both OT and IT environments, being flooded with overwhelming amounts of data from different security, IT, and other business sources. More than chasing down every security hiccup, their priority must be reducing exposure and mitigating threats before they cause material damage. In this digital whirlwind, security teams lack a single platform to transform raw data from any source into actionable insights.

Splunk's data-powered platform with assistive AI capabilities offers unmatched, comprehensive visibility by seamlessly ingesting, normalizing, and analyzing data from any source at scale. It offers continuous monitoring and correlation across security tools regardless of deployment — on-premises, cloud or hybrid — to help maximize attack-surface coverage. Find threats with comprehensive search and use Splunk AI Assistant to translate searches into SPL to save time. Splunk's custom alert actions feature makes it simple to take fast action. These custom alerts can be set to varying levels of granularity based on a variety of conditions, such as data thresholds, trend-based conditions, and behavioral pattern recognition like brute force attacks and fraud scenarios.

Splunk unifies data management for security practitioners to provide borderless data visibility, access, and analysis, while optimizing costs for security use cases and enabling the SOC to detect, investigate, and respond to threats faster than ever before. By leveraging Splunk's market-leading SIEM, Splunk Enterprise Security — equipped with Federated Search and Federated Analytics — security teams can gain rapid insights from their data, no matter where it resides, and control the flow of data to meet security and cost requirements without ever sacrificing efficiency or security posture. Splunk Enterprise Security also ensures cost-effective data optimization by ingesting only data critical to security use cases. Users have the flexibility to store and access their data, including at the edge, based on data tiering. This reduces forensics and compliance storage costs for added savings.

Empower accurate detection with context

Security leaders find themselves besieged by a pervasive lack of context when navigating the nebulous activity of threat detection. Analysts struggle to understand the significance and potential impact of security threats, which impedes their ability to make informed decisions and take appropriate action. Further, the management of an organization's collection of detections requires detection engineers to spend too much manual work to maintain and track any updates or changes within the detections.

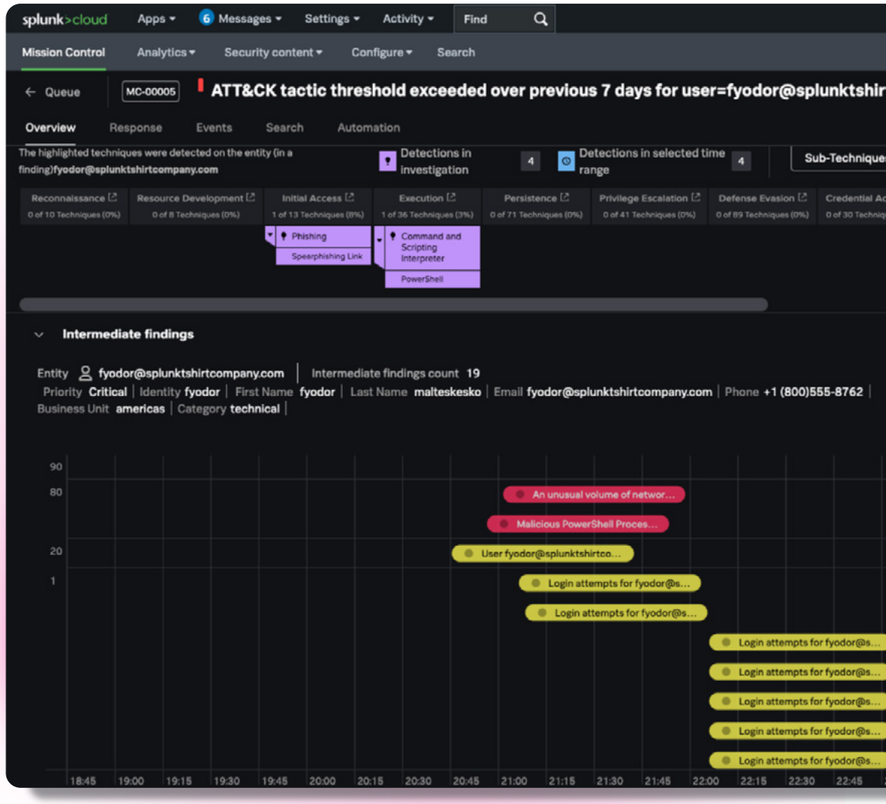
Unique to Splunk is a methodology called Risk-based alerting (RBA) within Splunk Enterprise Security that drastically reduces alert volumes by up to 90%. RBA uses the Splunk Enterprise Security correlation search framework to collect risk events into a single risk index. Events collected in the risk index create a single risk notable when they meet a specific criterion, so you can stay focused on imminent threats that traditional SIEM solutions might miss. This boosts productivity and ensures the threats you're detecting are high fidelity.

Furthermore, with enhanced detection capabilities, Splunk Enterprise Security helps analysts understand and implement a risk-based alerting detection strategy with turnkey capabilities to build high-confidence aggregated alerts for investigations. Event-based detections find threats within Splunk Events. Any event that matches a Threat Detection creates a Finding. With event-based detections, it provides the necessary context to respond to threats — ensuring efficient time spent on investigations.

The Splunk Threat Research Team (STRT) delves deep into detection engineering, providing you with 1,700+ out-of-the-box detections so you can find and remediate threats faster. These detections align to industry frameworks like MITRE ATT&CK, NIST CS F 2.0 and Cyber Kill Chain® Splunk also provides a machine learning toolkit (MLTK) to accelerate your ability to uncover threats with anomaly detection.

Supporting detection engineers is critical to the success of the SOC. Splunk Enterprise Security provides native, automatic version control within Splunk Enterprise Security Content Updates (ESCU), and customer-owned detections. Detection engineers can easily and efficiently save new versions of detections, back up detections, roll back to prior versions of detections with a single click, and maintain custom detections. Detection content is cleaner, better organized, and easier to track, so detection engineers can easily identify and update out-of-date content.

With Splunk Enterprise Security, you can enhance your security program with customizable dashboards, visualizations, and reports. For example, you could operationalize the MITRE ATT&CK framework with a visualization matrix that highlights the tactics and techniques observed in risk events to save time when investigating. Or, you could discover the scope of an incident and respond accurately using the Threat Topology visualization. With the enhanced risk analysis dashboard, security analysts can monitor user entity risk events from detections across RBA and behavioral analytics.



Fuel operational efficiency

Between overwhelming data and alert volumes, a multitude of tools and the burdens of regulatory compliance requirements, security teams have a lot to deal with while defending the organization from the full spectrum of risk, including AI-enabled threat campaigns.

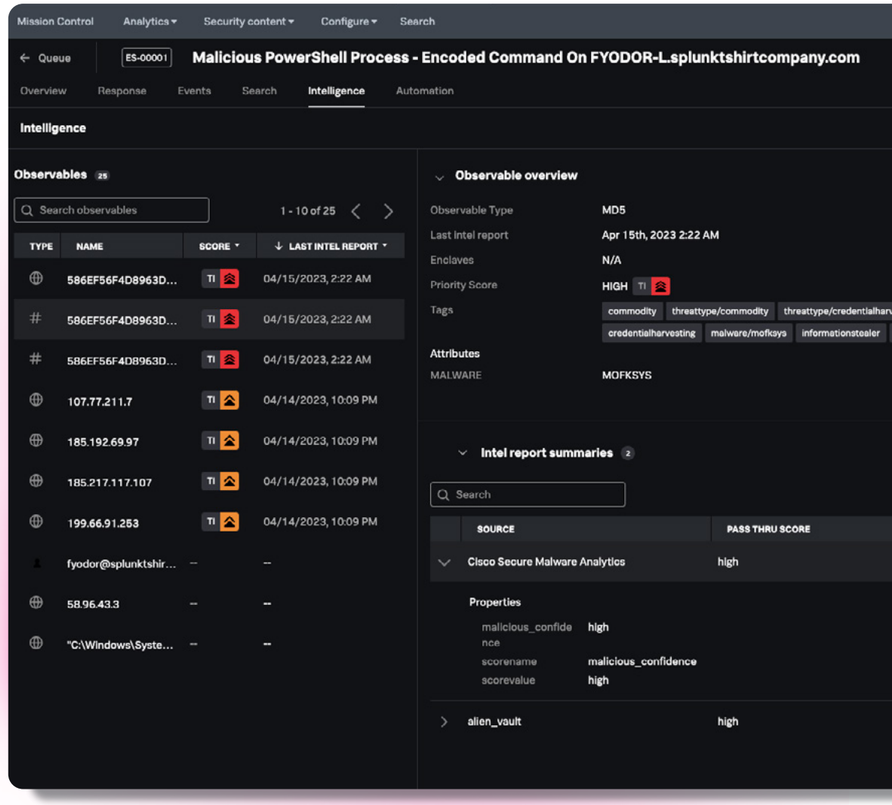
Splunk Enterprise Security provides native integration with Splunk SOAR playbooks that are infused with threat intelligence that brings together and normalizes the scoring of data sources. Actions with the case management and investigation features of Splunk Enterprise Security and Mission Control enable analysts to detect, investigate, and respond to threats from one modern interface. This brings an appreciable increase in their operational efficiency with a unified solution for data aggregation, analysis, and automation.

The result is a seamless, completely integrated workflow experience for case management, alert triage, incident investigation, and incident response use cases to the SOC, without leaving Splunk Enterprise Security. Analysts have one-click access to automate and orchestrate tasks within Splunk Enterprise Security. Response Plans directly in Splunk Enterprise Security allow analysts to easily collaborate and execute incident response workflows for common security use cases. Analysts have access to a defined and organized response process directly within Splunk Enterprise Security without spending extra time pivoting between other tools.

To further support analysts for a seamless workflow experience, the taxonomy in Splunk Enterprise Security aligns to Open Cybersecurity Schema Framework (OCSF), making it easy for the security team to understand exactly what they are working on within Splunk Enterprise Security. With all these capabilities and more, Splunk Enterprise Security ensures that mean time to detect (MTTD) and mean time to respond (MTTR) are optimized and simplified.

Plus, our vendor-neutral approach lets you solve any number of use cases by building custom apps or leveraging our expansive community and partner ecosystem of 2,200+ partners and 2,800+ apps on Splunkbase. Collect, search, monitor, and analyze data to meet increasingly complex compliance requirements. And with streamlined log management and specialized capabilities like the Splunk App for PCI Compliance, you can do it quickly.

Strengthen digital resilience and advance your SOC with unified threat detection, investigation and response. As the market leader in security operations solutions, Splunk is at the heart of the modern SOC — providing the breadth of technologies, community, and expertise for efficient and effective security at scale. Detect threats accurately, investigate holistically with security and IT context, and automate response to proactively address risk with Splunk.



Get Started.

Are you ready to learn more about how a market-leading SIEM can help modernize your SOC? Speak with a Splunk expert now.

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