

# SOC and TVM Automation Case Study

Building a resilient SOC and TVM automation framework.



## Overview

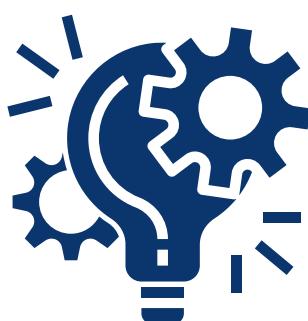
From October to December 2019, the client embarked on a transformative journey to enhance its Security Operations Centre (SOC) and Threat & Vulnerability Management (TVM) capabilities. The primary objective was to automate repetitive tasks, improve incident visibility, and streamline vulnerability remediation through strategic tool integrations and workflow orchestration.



This initiative represented a crucial step towards building a more resilient and efficient security infrastructure, enabling the team to respond faster to emerging threats whilst reducing manual workload and human error.

## Project Focus Area

- SOC Automation
- Vulnerability Management
- Tool Integration
- Workflow Optimisation





# Challenges



## Alert Overload

High volume of invalid login attempt alerts with numerous false positives overwhelming the SOC team's capacity to respond effectively.



## Data Silos

Limited data sharing between InsightIDR and other security systems, creating visibility gaps across the security ecosystem.



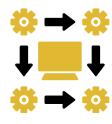
## Manual Processes

Time-consuming manual vulnerability scanning and reporting processes reducing team efficiency and increasing response times.



## Scheduling Constraints

Significant scheduling limitations with certain tools, particularly Nessus, hindering automated scan capabilities and requiring manual intervention.



## Fragmented Workflows

Disconnected workflows between detection and remediation tools created inefficiencies and delayed threat response across the security operations lifecycle.



# Solution Implementation

A comprehensive tool integration strategy was implemented to address the identified challenges and create a unified security operations framework.

## Tool Integration Summary

Platform	Primary Function	Key Activities / Notes
Arcsight	SOC Event Management	Monitored invalid logins, applied false positive checks, malicious IP validation, and custom dashboards for high-count alerts.
InsightIDR	Identity Detection & Response	API integration for basic data sharing; detailed integrations planned for later phases.
InsightVM	Vulnerability Management	Automated scanning, report pulling, event creation, integrated with Ansible for remediation workflows.
Insight AppSec	Application Security	Automated vulnerability scans and comprehensive reporting capabilities.
Ansible	IT Automation & Remediation	Integrated with InsightVM to automate vulnerability remediation processes.
Contrast Security	App Vulnerability Scanning	APIs explored for potential integration; full implementation not pursued.
SonarQube	Static Code Analysis	Integrated to automatically pull static analysis reports for code quality assessment.
Nessus	Vulnerability Scanning	Report integration achieved; scheduling not possible without Nessus Manager.

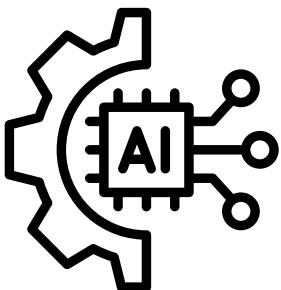


# Key Implementations



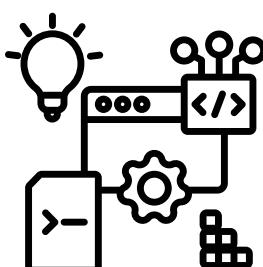
## Arcsight Dashboard Configuration

Configured sophisticated dashboards to flag invalid login attempts exceeding 15 occurrences, significantly improving threat visibility and enabling faster response to potential security incidents.



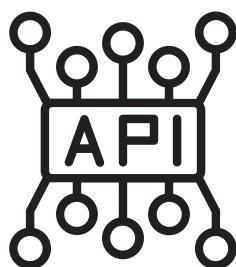
## InsightVM Automation

Enabled scheduled vulnerability scans, automated reporting mechanisms, and event creation workflows; seamlessly integrated with Ansible for streamlined remediation processes.



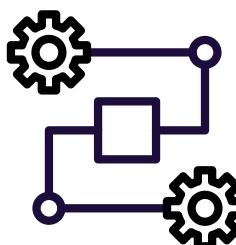
## SonarQube Integration

Implemented automated report pulling for static code analysis, enabling continuous monitoring of code quality and security vulnerabilities in the development pipeline.



## Contrast Security API Exploration

Thoroughly explored Contrast Security APIs to understand integration capabilities; full implementation deferred based on prioritisation and resource allocation decisions.



## InsightVM Automation

Successfully integrated reporting capabilities whilst identifying scheduling limitations that would require Nessus Manager for full automation potential.

# Results & Impact

## 75%

### False Positive Reduction

Significant decrease in false positives and alert noise in SOC operations

## 60%

### Time Savings

Reduced manual workload through automated scanning and remediation

## 40%

### Faster Response

Improved incident detection and response times with automated workflows

### Enhanced Incident Visibility

Improved incident visibility through automated dashboards providing real-time insights into security events, enabling proactive threat hunting and faster decision-making across the SOC team.

### Streamlined Vulnerability Management

Streamlined vulnerability scanning and remediation processes, dramatically reducing manual workload and accelerating time-to-remediation for critical vulnerabilities across the infrastructure.

### Strengthened Security Posture

Strengthened application security posture with automated testing and code analysis integrations, ensuring vulnerabilities are identified and addressed earlier in the development lifecycle.

**Future Roadmap:** Identified clear next steps for deeper integrations and tool upgrades, including Nessus scheduling enhancements and InsightIDR data expansion initiatives to further strengthen the automation framework.



# Conclusion

This project successfully established a structured and scalable security automation framework that transformed the client's security operations capabilities. By integrating SIEM, IDR, vulnerability management, and application security tools with automated workflows, the SOC achieved remarkable improvements in detection accuracy, accelerated remediation timelines, and enhanced overall operational efficiency.

The implementation demonstrated that strategic tool integration and workflow orchestration can significantly reduce manual effort whilst improving security outcomes. The foundation laid during this three-month engagement positions the organisation for continued security maturity and operational excellence.

# Key Achievements

- Unified security operations platform
- Automated vulnerability lifecycle
- Reduced false positive rates
- Enhanced threat visibility
- Improved team efficiency
- Scalable automation framework



A well-integrated security operations framework doesn't just respond to threats—it anticipates them, automates responses, and empowers security teams to focus on strategic initiatives rather than repetitive tasks.