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A Unified Framework Approach for Automated Vulnerability Assessment

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Abstract

The rapid growth of cyber security threats has made vulnerability assessment crucial for organizational defense strategies. Conventional methods rely on running separate scanners individually and manually linking their results. This approach is becoming less efficient, uses more resources, and is more likely to involve human error. These issues not only slow down the assessment process but also increase the chance of overlooking important vulnerabilities. To address these challenges, this paper introduces a unified framework for automated vulnerability assessment. The framework combines several widely used security scanners into one automated system that handles tool execution, brings together results, and smartly connects findings. This unified process cuts down on redundancy, improves detection accuracy, reduces false positives, and ensures that even subtle or less obvious vulnerabilities are found and prioritized. By automating the entire workflow, the framework significantly reduces assessment time. This allows cyber security professionals to focus on remediation, incident response, and strategic defense. In the end, this approach improves efficiency, consistency, and resilience in vulnerability management, giving organizations a stronger defense against changing cyber threats.

Keywords: Automated Vulnerability Assessment, Unified Framework, Cyber Security, Threat Detection, Risk Management, Security Automation.