DEMO CORP
Security Assessment Findings Report

Business Confidential

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Project: EH-002
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Demo Corp may share this document with auditors under non-disclosure agreements to demonstrate penetration test requirement compliance.

Disclaimer

A penetration test is considered a snapshot in time. The findings and recommendations reflect the information gathered during the assessment and not any changes or modifications made outside of that period.

Time-limited engagements do not allow for a full evaluation of all security controls. TCMS prioritized the assessment to identify the weakest security controls an attacker would exploit. TCMS recommends conducting similar assessments on an annual basis by internal or third-party assessors to ensure the continued success of the controls.

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Assessment Overview

Per tanggal 5 Mei 2024 – 8 Mei 2024, SafeGuard Solution telah melakukan tes penetrasi terhadap aplikasi mockup bank yang masih dalam tahap development dari Jay's Bank. Tujuan dari penetration testing kali ini adalah untuk menemukan kerentanan yang mungkin ada dalam aplikasi dan membuat laporan guna perbaikan sebelum aplikasi diluncurkan ke publik.

Assessment Components

Internal Penetration Test

An internal penetration test emulates the role of an attacker from inside the network. An engineer will scan the network to identify potential host vulnerabilities and perform common and advanced internal network attacks, such as: LLMNR/NBT-NS poisoning and other man- in-the-middle attacks, token impersonation, kerberoasting, pass-the-hash, golden ticket, and more. The engineer will seek to gain access to hosts through lateral movement, compromise domain user and admin accounts, and exfiltrate sensitive data.

Finding Severity Ratings

The following table defines levels of severity and corresponding CVSS score range that are used throughout the document to assess vulnerability and risk impact.

Severity	CVSS V3 Score Range	Definition
Critical	9.0-10.0	Exploitation is straightforward and usually results in system-level compromise. It is advised to form a plan of action and patch immediately.
High	7.0-8.9	Exploitation is more difficult but could cause elevated privileges and potentially a loss of data or downtime. It is advised to form a plan of action and patch as soon as possible.
Moderate	4.0-6.9	Vulnerabilities exist but are not exploitable or require extra steps such as social engineering. It is advised to form a plan of action and patch after high-priority issues have been resolved.
Low	0.1-3.9	Vulnerabilities are non-exploitable but would reduce an organization's attack surface. It is advised to form a plan of action and patch during the next maintenance window.
Informational	N/A	No vulnerability exists. Additional information is provided regarding items noticed during testing, strong controls, and additional documentation.

Risk Factors

Risk is measured by two factors: Likelihood and Impact:

Likelihood

Likelihood measures the potential of a vulnerability being exploited. Ratings are given based on the difficulty of the attack, the available tools, attacker skill level, and client environment.

Impact

Impact measures the potential vulnerability's effect on operations, including confidentiality, integrity, and availability of client systems and/or data, reputational harm, and financial loss.

Scope

Assessment	Details
Internal Penetration Test	167.172.75.216
Internal Penetration Test	All Functional Aplication, User Mechanism & Authentication, User Interface & API, Database Interactions & Data Handling Processes.

Scope Exclusions

1. Tidak diperbolehkan untuk melakukan serangan yang dapat merusak data atau infrastruktur aplikasi.
2. Tidak diperbolehkan untuk mengeksploitasi kerentanan yang dapat memberikan akses ke server (contoh: RCE, privilege escalation).
3. Hindari serangan DoS/DDoS yang dapat mengganggu ketersediaan layanan aplikasi.

Client Allowances

1. Anda diizinkan untuk mencari dan mengidentifikasi kerentanan dalam aplikasi Jay's Bank.
2. Fokus pada kerentanan aplikasi seperti SQL injection, XSS, dan authentication/authorization issues.
3. Apabila memungkinkan, kerentanan yang ditemukan dapat di-exploit untuk mengakses akun pengguna lain, tetapi hanya sebatas aplikasi (tidak ke server).
4. Pengerjaan hanya bisa menggunakan jaringan ITS (dalam bentuk **WIFI / VPN** ITS)

Executive Summary

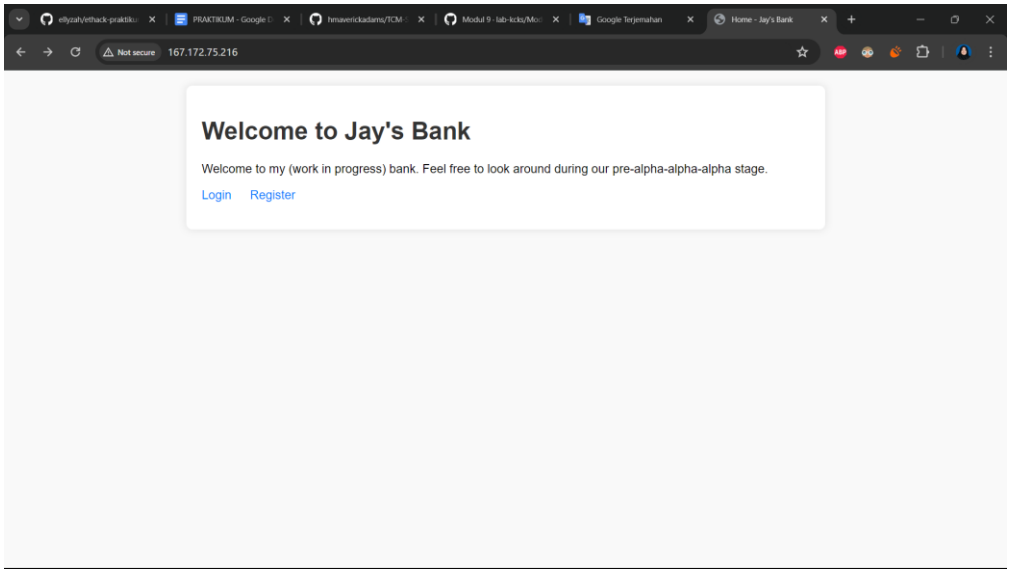
SafeGuard Solution melakukan penetrasi selama kurang lebih 4 hari pengerjaan dengan beberapa hal yang sudah dilakukan dan ditemukan.

Scoping and Time Limitations

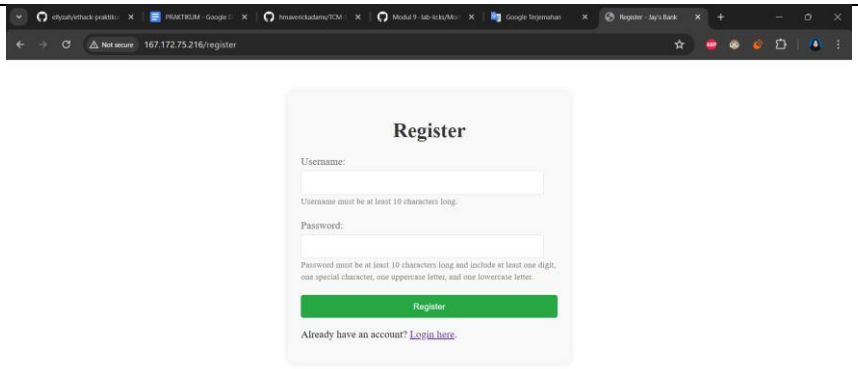
Untuk Scoping sendiri sesuai dengan yang tertulis pada bagian Scope Exclusion. Serta untuk pengerjaan sendiri dilakukan selama 4 hari.

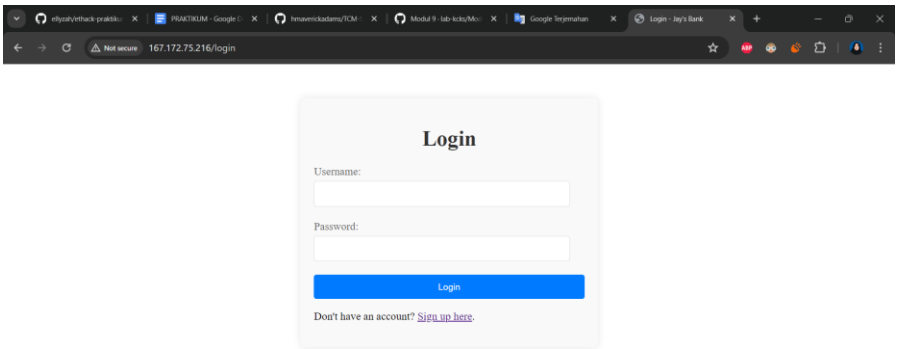
Testing Summary

Berikut merupakan tampilan awal dari Homepage Jay's Bank



Terdapat laman login dan Register untuk Jay's Bank user





Tester Notes and Recommendations

Testing results of the Demo Corp network are indicative of an organization undergoing its first penetration test, which is the case here. Many of the findings discovered are vulnerabilities within Active Directory that come enabled by default, such as LLMNR, IPv6, and Kerberoasting.

During testing, two constants stood out: a weak password policy and weak patching. The weak password policy led to the initial compromise of accounts and is usually one of the first footholds an attacker attempts to use in a network. The presence of a weak password policy is backed up by the evidence of our testing team cracking over 2,200 user account passwords, including a majority of the Domain Administrator accounts, through basic dictionary attacks.

We recommended that Demo Corp re-evaluates their current password policy and considers a policy of 15 characters or more for their regular user accounts and 30 characters or more for their Domain Administrator accounts. We also recommend that Demo Corp explore password blacklisting and will be supplying a list of cracked user passwords for the team to evaluate. Finally, a Privilege Access Management solution should be considered.

Weak patching and dated operating systems led to the compromise of dozens of machines within the network. We believe the number of compromised machines would have been significantly larger, however the TCMS and Demo Corp teams agreed it was not necessary to attempt to exploit any remote code execution (RCE) based vulnerabilities, such as MS17-010 (Finding IPT-012), as the domain controller had already been compromised and the teams did not want to risk any denial of service through failed attacks.

We recommend that the Demo Corp team review the patching recommendations made in the Technical Findings section of the report along with reviewing the provided Nessus scans for a full overview of items to be patched. We also recommend that Demo Corp improve their patch management policies and procedures to help prevent potential attacks within their network.

On a positive note, our testing team triggered several alerts during the engagement. The Demo Corp Security Operations team discovered our vulnerability scanning and was alerted when we attempted to use noisy attacks on a compromised machine. While not all attacks were discovered during testing, these alerts are a positive start. Additional guidance on alerting and detection has been provided for findings, when necessary, in the Technical Findings section.

Overall, the Demo Corp network performed as expected for a first-time penetration test. We recommend that the Demo Corp team thoroughly review the recommendations made in this report, patch the findings, and re-test annually to improve their overall internal security posture.

Key Strengths and Weaknesses

Vulnerability Summary & Report Card

The following tables illustrate the vulnerabilities found by impact and recommended remediations:

Internal Penetration Test Findings

13	5	6	0	1
Critical	High	Moderate	Low	Informational

Finding	Severity	Recommendation
Internal Penetration Test		

Technical Findings

Internal Penetration Test Finding

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