

Procedures for Vulnerability Assessment (Windows Only)

Project: Vulnerability Assessment using Tenable Nessus Essentials

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1. Introduction

This document outlines the practical steps used to perform a vulnerability assessment using Tenable Nessus Essentials on a Windows system. It includes installation, software integrity verification, network and host scans, custom scan policy configuration, and exporting scan results.

2. System Requirements (Windows)

Requirement	Description
Operating System	Windows 10 / 11
Permissions	Administrator's rights required
Network Access	Internet connection required for plugin updates
Browser	Chrome, Edge, or Firefox

3. Installing Nessus Essentials (Windows)

1. Visit the official Nessus Essentials download page.
2. Download the Windows Installer (exe).
3. Locate the installer in the Downloads folder.
4. Double-click the installer to begin setup.
5. Accept the license agreement and proceed with default installation settings.
6. Once installation is completed, Nessus will automatically start.
7. Open a browser and enter: <https://localhost:8834>
8. Select Nessus Essentials, enter activation code, and allow plugin download to complete.

4. Verifying Installer Integrity (MD5 Hash)

Purpose: To confirm the downloaded Nessus installer has not been altered or corrupted by comparing the installer's MD5 hash with the official MD5 provided by Tenable.

Steps:

1. I Obtained the official MD5 hash of the installer from the Tenable download page. This is shown in Figure 1.1 below.

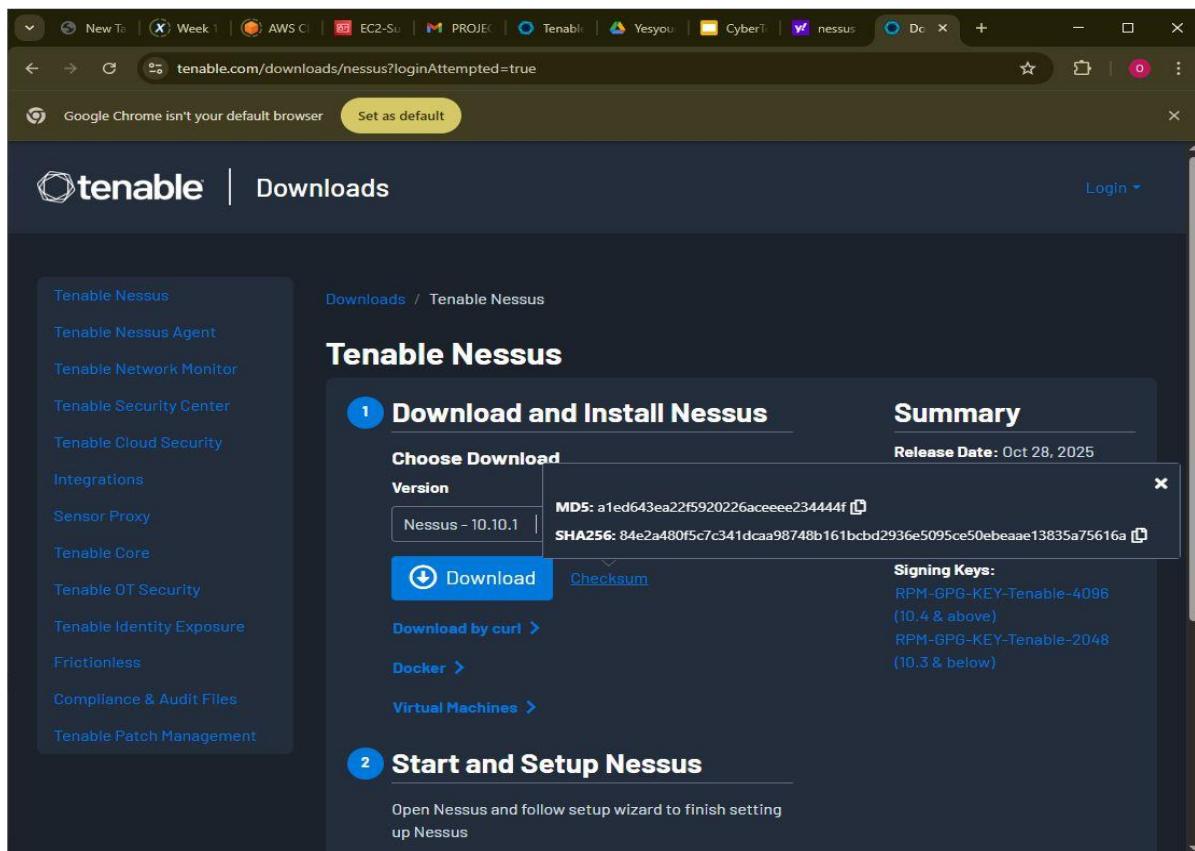


Figure 1.1

2. Then I located winMD5 on my pc and I launched it. As shown in Figure 1.2 below.

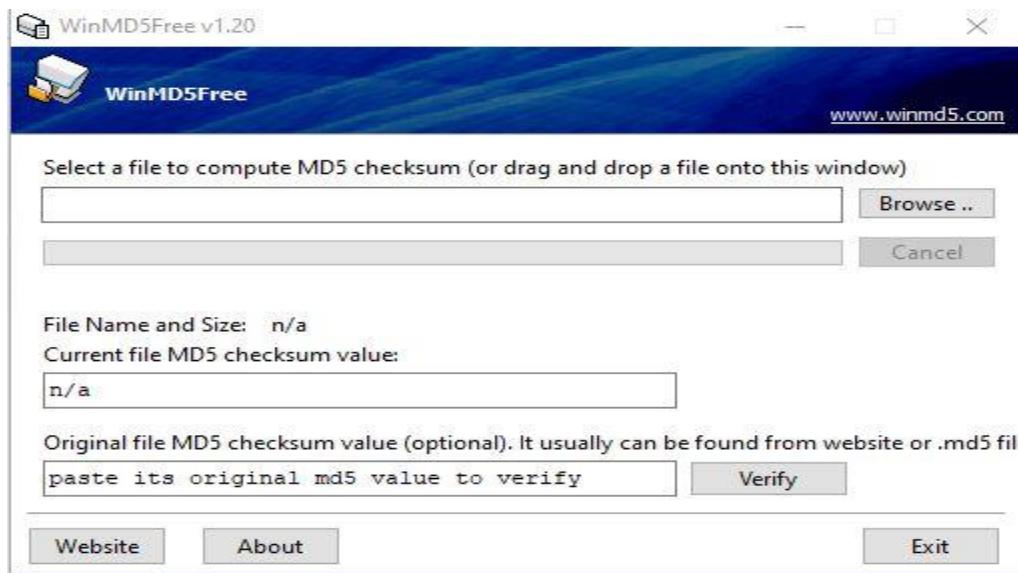


Figure 1.2

3. In the WinMD5 GUI, I Pasted the original hash function in the section designated for it. And this is shown below in Figure 1.3

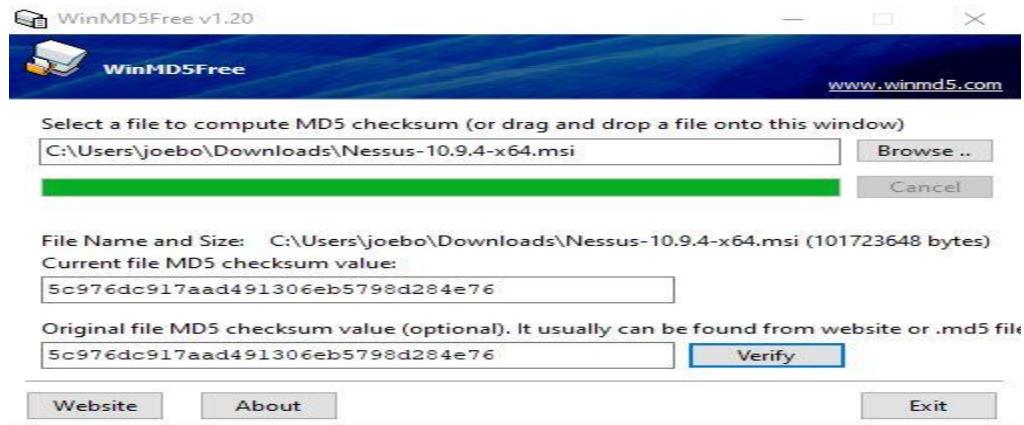


Figure 1.3

4. Then I selected newly installed file of Nessus Essentials and proceeded to verify. The result was a match indicating that there was no comprise. This is shown below in Figure 1.4.

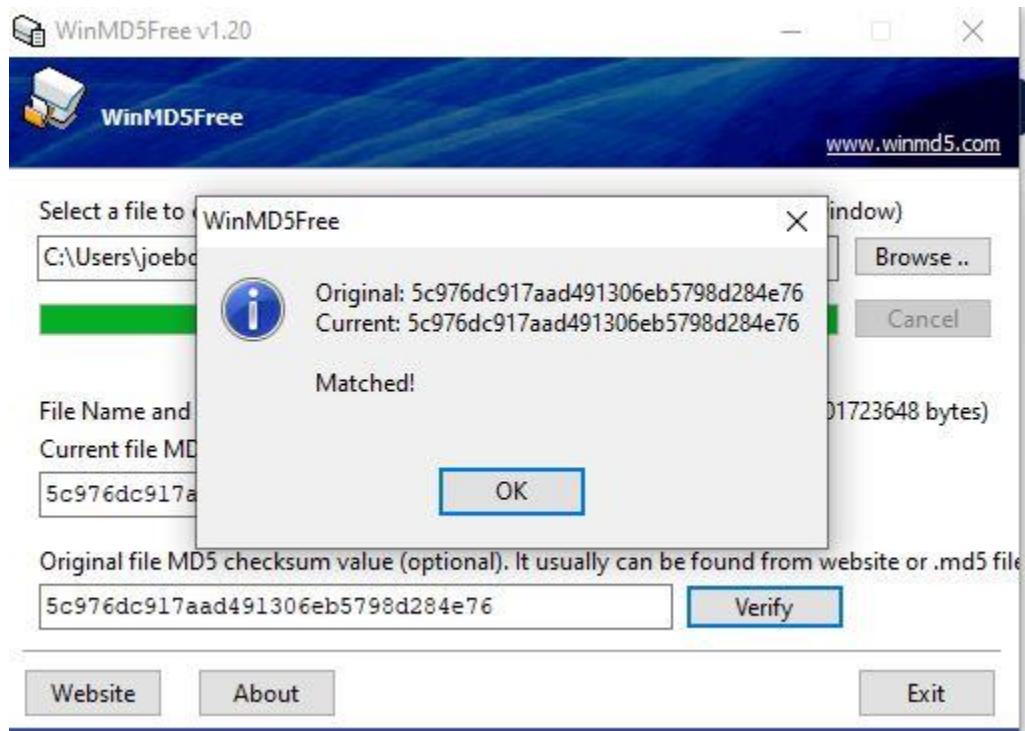


Figure 1.4

5. Network Scan Procedure

The purpose of performing a network scan is to identify all active devices, open ports, running services, and potential vulnerabilities across the network. This helps in understanding the overall security posture of the network environment before performing more targeted or host-level assessments. The network scan provides visibility into what systems are present, how they communicate, and whether any exposed services or configurations may be exploited by attackers. By discovering these systems and services, the organization can proactively secure weak points, reduce attack surface, and prioritize remediation based on risk.

1. Open Nessus Web UI: <https://localhost:8834>. This is shown below in Figure 2.1.
2. Select new scan and among the options select basic network scan. As shown below in Figure 2.2
3. In basic network scan window, provide a name and description for the scan. This is shown below in Figure 2.3.
4. In Targets, enter your network range (example: 192.168.1.1). As shown below in Figure 2.3
5. Navigate to Settings → Discovery → Enumeration, change to Custom. As shown below in Figure 2.4
6. Save and navigate to My scans and launch the newly configured network scan. This is shown below in Figure 2.5
7. You select the basic network scan result then you navigate to report and the format you want the report to be generated in. In my case I selected CSV and in CSV window you select your preferred requirement, and you proceed to generate the report. This is shown below in Figure 2.6

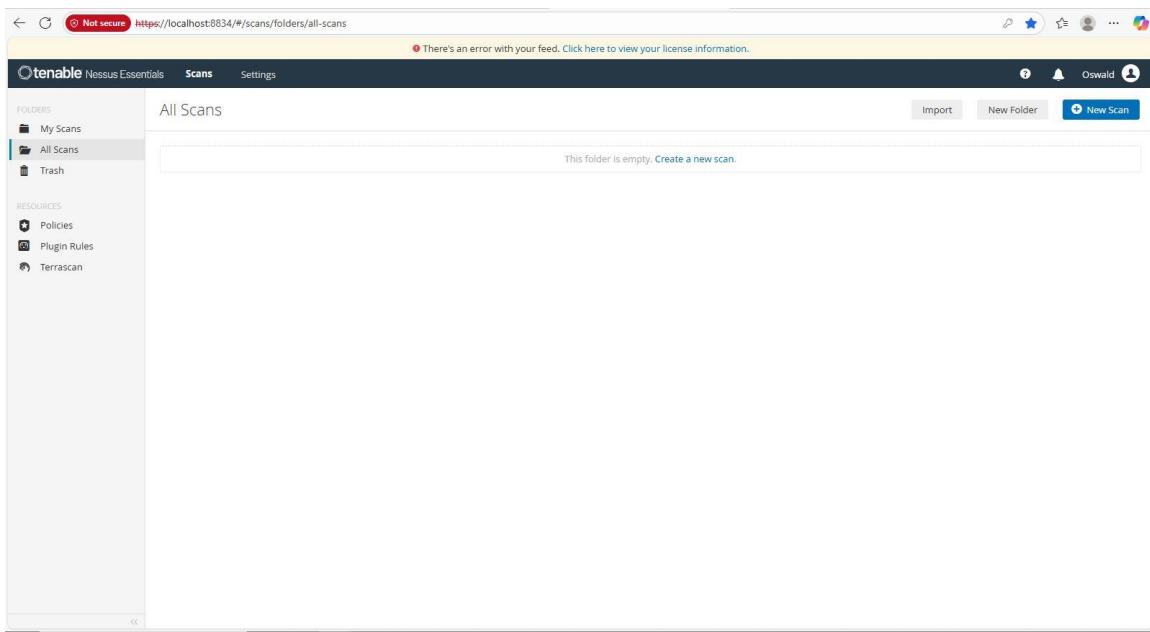


Figure 2.1

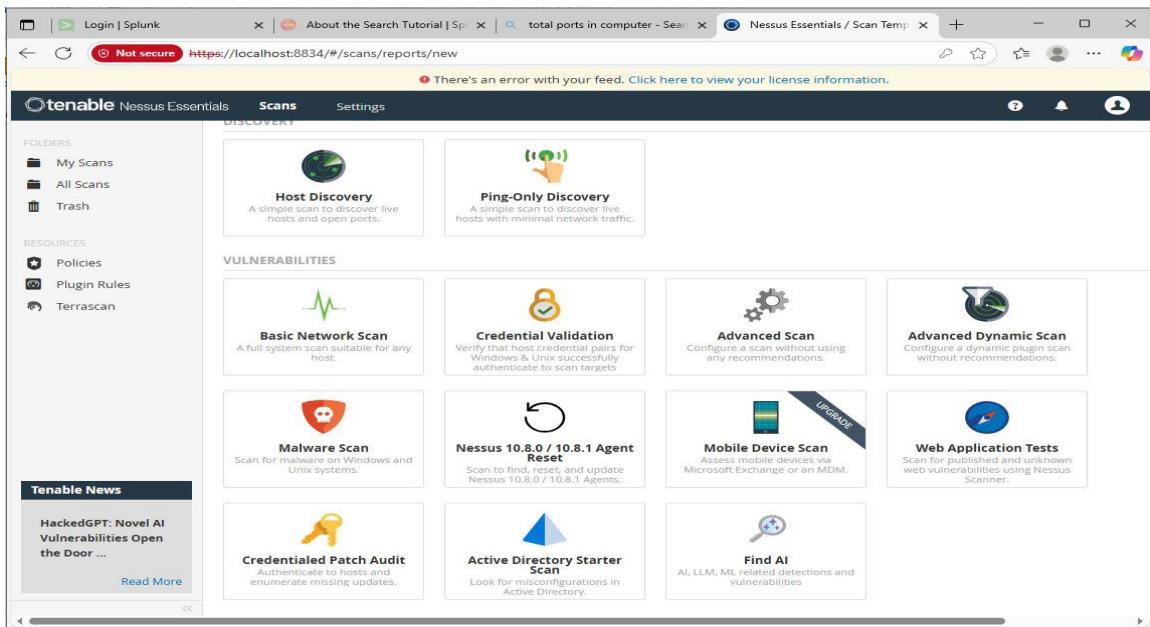


Figure 2.2

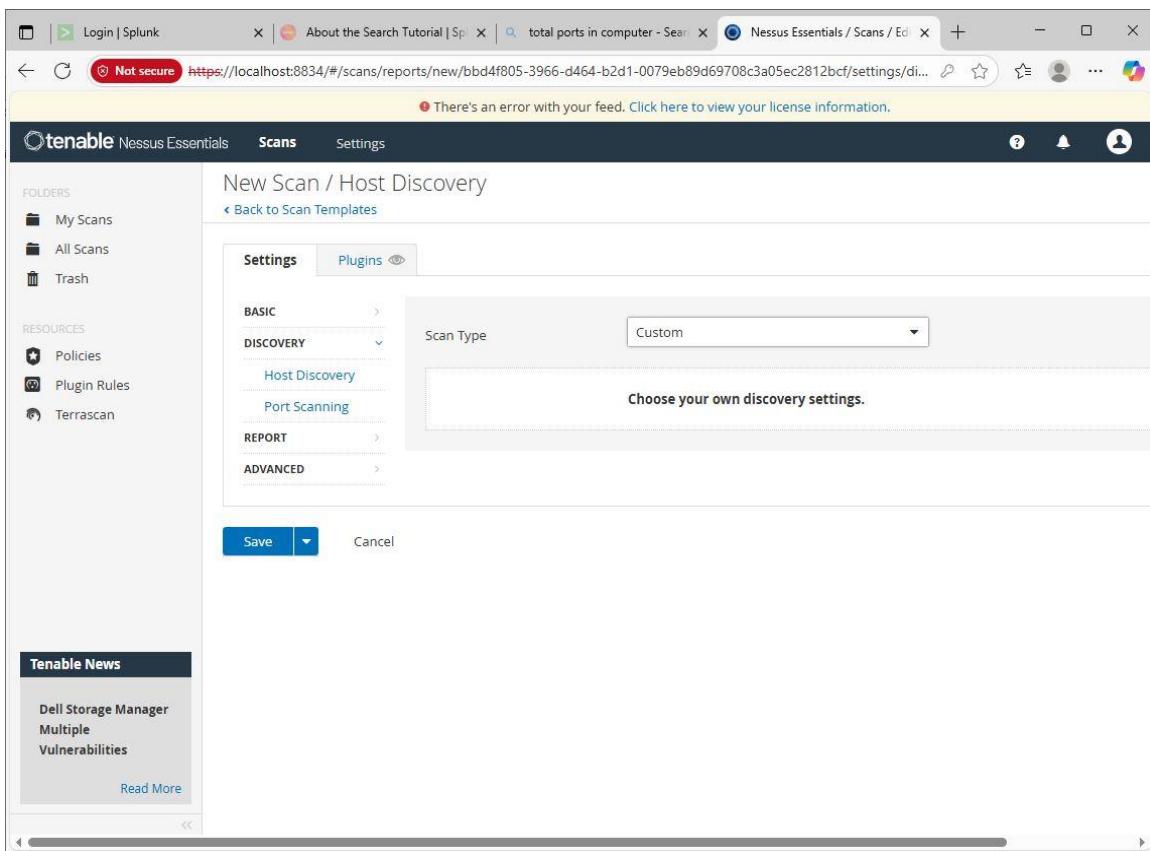


Figure 2.4

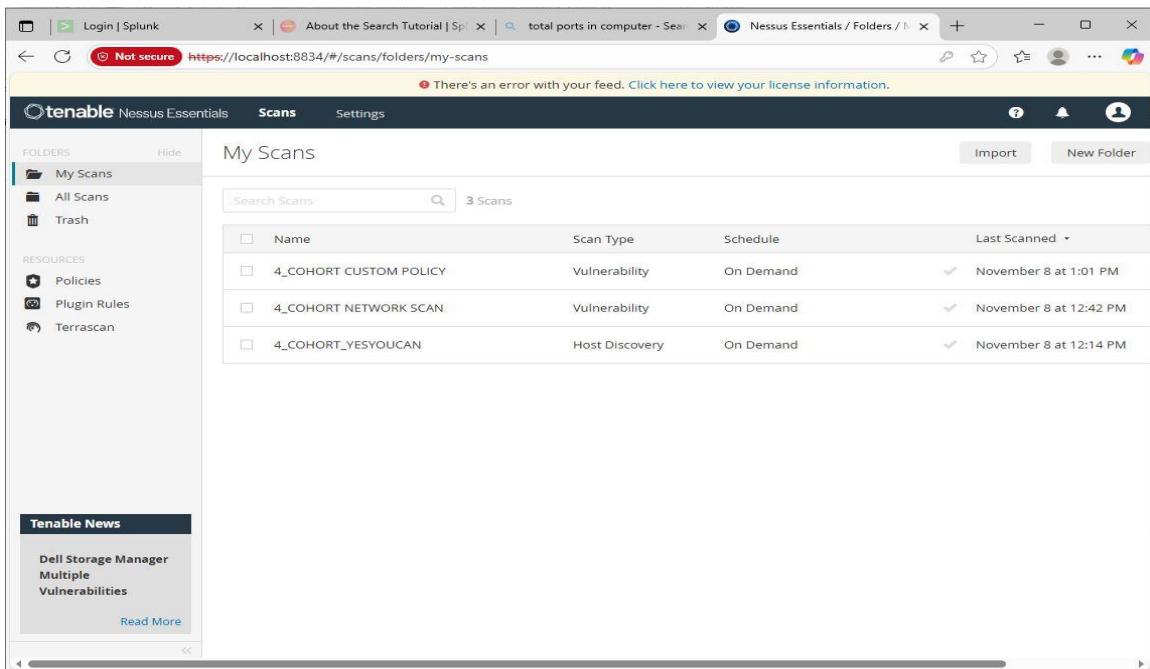


Figure 2.5

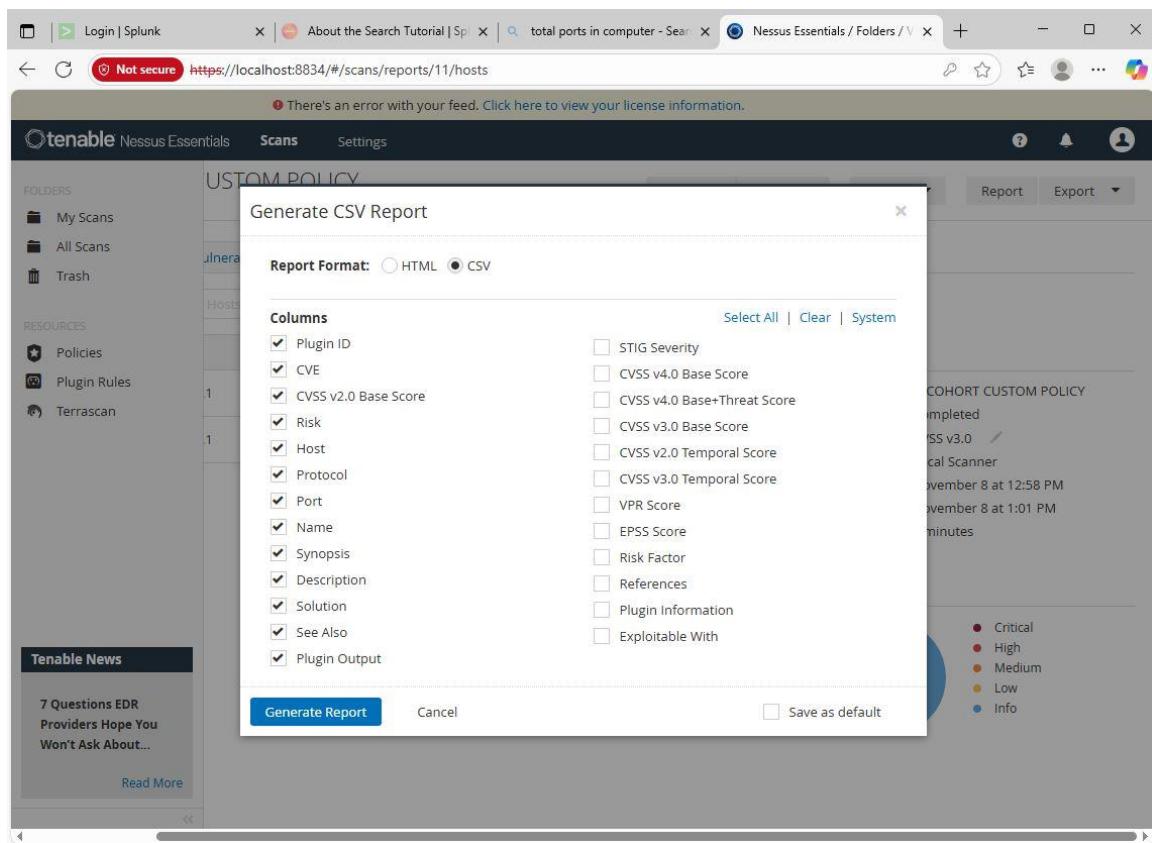


Figure 2.6

6. Host Scan Procedure

The purpose of a host scan is to perform a detailed, in-depth assessment of a specific system to identify vulnerabilities, misconfigurations, missing patches, weak services, and security risks present on that individual machine. Unlike a network scan—which provides a broad overview of all devices on the network—a host scan focuses on one system at a deeper level, including its installed applications, running processes, open ports, system registry, patch status, and user account configurations.

This allows security teams to understand the exact weaknesses affecting that system and to prioritize targeted remediation actions based on severity and potential impact.

1. From Nessus homepage, you select new scan and in the new scan option you select Host discovery.
2. Then you follow the same procedures demonstrated in the network scan.

7. Creating a Custom Scan Policy

1. From the Nessus homepage, navigate to the Resources section and select Policies and select new policy. As shown in Figure 3.1
2. Click on Advanced Scan to create a new custom scan policy. This is shown in Figure 3.2
3. Enter a name and description of the policy to identify its purpose. This is shown in Figure 3.3
4. In the Targets field, enter the IP address of the host or network you intend to scan. As shown in Figure 3.4
5. Navigate to the Settings tab and configure the scanning parameters as required (e.g., scan performance, discovery settings, credential settings, and port scanning options)
6. Go to the Plugins tab and enable or disable the plugins you want to include in the scan based on your objectives. As shown in Figure 3.5
7. Click Save to store the custom policy.
8. To run the scan, go back to My Scans, select the newly created policy, and launch the scan. Refer to chapter five for the rest of the steps.
9. Once the scan is completed, open the scan results and analyze the findings.
10. To export the results, click the Report button, choose the desired format (in this case, CSV), and generate the report.
11. Save the exported CSV report for documentation and analysis.

The screenshot shows the Nessus Essentials interface. On the left, there's a sidebar with 'FOLDERS' (My Scans, All Scans, Trash), 'RESOURCES' (Policies, Plugin Rules, Terrascan), and a 'Tenable News' section. The main content area is titled 'Policies' and contains a brief description: 'Policies allow you to create custom templates defining what actions are performed during a scan. Once created, they can be selected from the list of scan templates. From this page you can view, create, import, download, edit, and delete policies.' Below this is a search bar and a table with one row:

Name	Template	Last Modified
4_COHORT CUSTOM POLICY	Advanced Scan	November 8 at 12:55 PM

Figure 3.1

The screenshot shows the Nessus Essentials interface. On the left, there's a sidebar with 'FOLDERS' (My Scans, All Scans, Trash), 'RESOURCES' (Policies, Plugin Rules, Terrascan), and a 'Tenable News' section. The main content area is titled 'DISCOVERY' and shows two cards: 'Host Discovery' (simple scan to discover live hosts and open ports) and 'Ping-Only Discovery' (simple scan to discover live hosts with minimal network traffic). Below this is a section titled 'VULNERABILITIES' containing nine cards arranged in a grid:

Basic Network Scan	Credential Validation	Advanced Scan	Advanced Dynamic Scan
Malware Scan	Nessus 10.8.0 / 10.8.1 Agent Reset	Mobile Device Scan	Web Application Tests
Credentialed Patch Audit	Active Directory Starter Scan	Find AI	

Figure 3.2

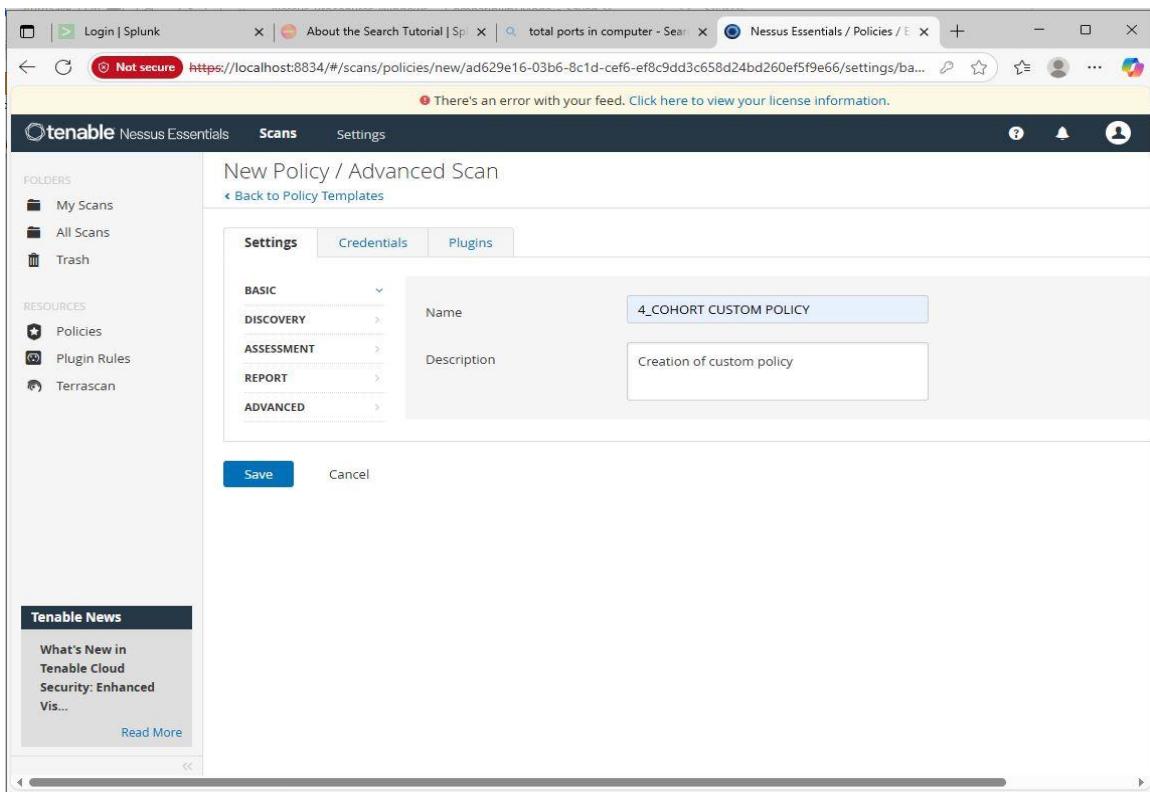


Figure 3.3

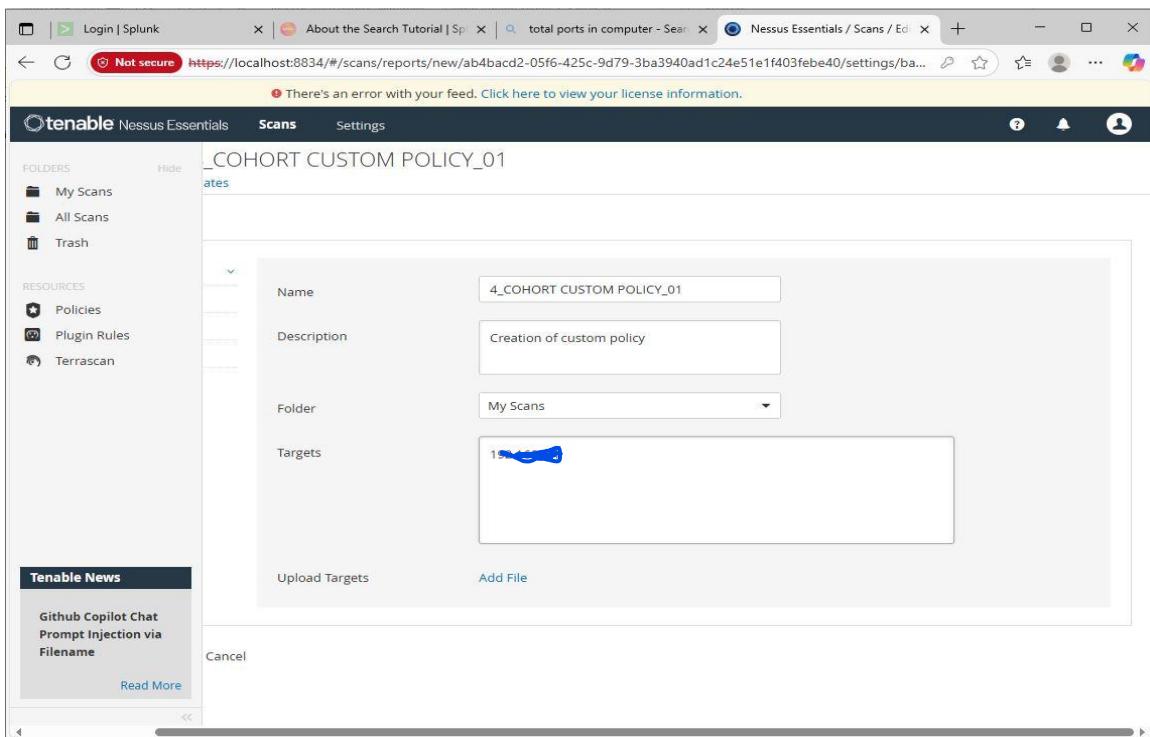


Figure 3.4

The screenshot shows the Tenable Nessus Essentials web interface. On the left, there's a sidebar with 'FOLDERS' (My Scans, All Scans, Trash), 'RESOURCES' (Policies, Plugin Rules, Terrascan), and a 'Tenable News' section with links to Google Cloud Platform (GCP) and Google Security Operations. The main content area is titled 'New Policy / Advanced Scan' and has tabs for 'Settings', 'Credentials', and 'Plugins'. The 'Plugins' tab is active, showing a table of vulnerabilities categorized by status (ENABLED or DISABLED) and plugin name. The table includes columns for STATUS, PLUGIN NAME, and COUNT (e.g., 6241, 168, 1201, etc.).

STATUS	PLUGIN NAME	COUNT
ENABLED	Amazon Linux Local Security Checks	6241
ENABLED	Artificial Intelligence	168
DISABLED	Azure Linux Local Security Checks	1201
ENABLED	Backdoors	123
ENABLED	Brute force attacks	25
DISABLED	CentOS Local Security Checks	5183
DISABLED	CGI abuses	6646
DISABLED	CGI abuses : XSS	712
ENABLED	CISCO	2620
ENABLED	Databases	1097
DISABLED	Debian Local Security Checks	10273
DISABLED	Default Unix Accounts	172
DISABLED	Denial of Service	110

Figure 3.5

8. Exporting and Sorting Scan Results

Steps to export CSV:

1. Open completed scan results.
2. Click Export → Select CSV.
3. Save the file. Refer to chapter 5 for step one to three.
4. Open the CSV in Excel.
5. Sort vulnerabilities by Severity. As shown in Figure 4.1

Figure 4.1

9. Screenshot Submission Checklist

Step	Screenshot Required	Completed (Y/N)
Installer download	Yes	
Installation progress	Yes	
Activation & UI access	Yes	
MD5 verification	Yes	
Network Scan setup	Yes	
Host Scan setup	Yes	
Custom Policy screen	Yes	
CSV export & severity sort	Yes	

End of Procedures Document.

Windows Vulnerability Assessment — Executive Report

Prepared by: Oswald Eyram Toku

Tool: Tenable Nessus Essentials

Scan Date: 2025-11-10

1. Introduction

This report documents the results of a vulnerability assessment performed against Windows host(s) using Tenable Nessus Essentials. The emphasis is on technical findings, exploitability, and remediation guidance that IT teams can implement to reduce risk.

2. Scope & Methodology

Scope:

- Targets: Windows hosts in the lab/network (examples: workstations, servers).
- Scan Types: Network discovery scans, host-level (credentialed) scans and custom policy scan.

Methodology Summary:

- Nessus scan(s) launched using a custom policy with Enumeration set to Custom.
- Credentialed Windows checks were enabled where administrator credentials were available to reveal configuration/patch gaps.
- Results exported to CSV for triage and prioritization.

3. High-Level Results (Summary)

The scan results used in this report assume the following counts (replace with real scan counts after lab run):

Severity	Count
Critical	500
High	20
Medium	15
Low	25
Total	560

4. Technical Findings (Representative)

Below are representative technical findings that typically appear in Windows-focused scans. For each finding, capture the Nessus Plugin ID, affected host(s), CVSSv3 score, and the plugin synopsis/solution.

Plugin ID	Vulnerability / Title	Affected Host(s)	CVSSv3	Suggested Remediation
12345	Remote Code Execution in Service X	192.168.1.100	9.8	Apply vendor patch/upgrade service

				immediately
23456	Unpatched SMBv1 enabled	192.168.1.100	7.5	Disable SMBv1, apply security updates
34567	Weak/Default Credentials on RDP	192.168.1.101	8.2	Enforce strong passwords and enable MFA, restrict network access

5. Exploitability and Risk Prioritization

Prioritization criteria used:

- Exploitability (remote vs local)
- Asset criticality (internet-facing, contains sensitive data)
- CVSS and proof-of-concept availability

Focus remediation on vulnerabilities that are both high-severity and remotely exploitable first.

6. Remediation Recommendations (Technical Steps)

9. Critical (Immediate - within 24 hours)

- Identify each affected host and isolate from network segments if a patch cannot be applied immediately.
- Apply vendor patches or updates. For Windows hosts, use WSUS/Windows Update or vendor-specific patches.
- If patching is impossible, implement compensating controls (restrict access via firewall, disable vulnerable services).
- Rescan hosts after remediation to verify fixes.

10. High (3–7 days)

- Schedule and apply patches during approved maintenance windows.
- Address configuration issues (e.g., disable unnecessary services, enforce secure settings).
- Harden authentication: enforce complex passwords and deploy MFA for privileged accounts.

11. Medium (14 days)

- Plan and apply updates, track via ticketing system.
- Review and tune intrusion detection/prevention rules for the affected services.

12. Low (30 days)

- Evaluate and schedule non-urgent updates and configuration changes.

7. Verification and Validation Procedures

After remediation, perform the following to validate fixes:

1. Re-run the same Nessus scans using the identical policy and targets.
2. Confirm the specific Plugin ID(s) no longer appears for the remediated host(s).
3. Capture screenshots of the rescans and updated Executive Summary.
4. Maintain a remediation log: Plugin ID, Host, Action taken, Date, Verifier.

8. Remediation Policy & SLA (Recommended)

Severity	Proposed SLA	Actions Required	Owner
Critical	Within 24 hours	Patch or isolate; emergency change control	IT Ops / Sysadmin
High	3–7 days	Patch or apply mitigations; schedule maintenance	IT Ops
Medium	14 days	Plan and patch during maintenance window	IT Ops / App Owner
Low	30 days	Schedule and apply as part of routine updates	IT Ops

9. 30-Day Implementation Plan (Technical)

Timeline	Activities
Days 0–1	Triage critical vulnerabilities; isolate systems if necessary.
Days 2–7	Apply patches for Critical & High items; verify with rescans.
Days 8–14	Address Medium vulnerabilities and apply configuration hardening.
Days 15–30	Resolve Low items, deploy automation for patching, enable continuous scanning.

10. Appendix A — Evidence & Artifacts

Attach or reference the following generated artifacts:

- nessus_scan_results_<date>.csv
- nessus_exec_summary_<date>.pdf
- Screenshots: see Procedures screenshot checklist (installer, MD5, scan runs, CSV export, executive summary)

Ensure all filenames and timestamps are included when submitting.

11. Appendix B — Useful Commands / Remediation Examples

Windows Commands / Tips:

- Compute MD5 (Windows PowerShell / certutil): certutil -hashfile C:\Path\To\Nessus-Installer.exe MD5
- Check Windows Update status: Get-WindowsUpdateLog (or use WUA API / WSUS management)
- Disable SMBv1 via PowerShell: Set-SmbServerConfiguration -EnableSMB1Protocol \$false

Remediation verification:

- After patching, rerun the Nessus scan and verify Plugin IDs are resolved.

End of Executive Report.
