



# Vidyavardhini's College of Engineering & Technology

## Department of Artificial Intelligence and Data Science

### EXPERIMENT 10

**Aim:** Use the NESSUS/ISO Kaali Linux tool to scan the network for vulnerabilities

#### Theory:

##### 1. OpenVAS:

OpenVAS is a free and open-source vulnerability scanner built into Kali. It offers a comprehensive solution similar to Nessus, but requires some configuration. Here's how to use OpenVAS:

**Start the service:** Use the command `openvas-start` to initiate the OpenVAS scanner.

**Web Interface:** Access the OpenVAS web interface at <https://localhost:9392> in your web browser. You'll need to set up an admin user and password for initial configuration.

**Scans and Reports:** The OpenVAS web interface allows you to configure scan targets (IP addresses, ranges), select vulnerability databases, and launch scans. It also generates reports on identified vulnerabilities.

##### 2. Nmap with NSE Scripts:

Nmap, a versatile network mapper, can be used for vulnerability scanning when combined with NSE scripts. Here's how it works:

**Basic Scan:** Use the `nmap` command with flags to scan your network. For example, `nmap -sT -A 192.168.1.0/24` performs a TCP SYN scan with additional information gathering on the subnet 192.168.1.0/24.

**NSE Scripts:** Nmap Scripting Engine (NSE) offers various scripts for vulnerability detection. Use the `--script` flag with the desired script name. For example, `nmap --script vuln 192.168.1.10` runs vulnerability scripts against the IP 192.168.1.10. Explore the available NSE scripts with `nmap --script-list`.

#### Choosing the Right Tool:

**OpenVAS:** Offers a user-friendly web interface and a comprehensive vulnerability database. Good for detailed scans and reports. Requires some configuration.

**Nmap with NSE Scripts:** More lightweight and quicker for basic vulnerability checks. Requires knowledge of specific NSE scripts for desired vulnerabilities.

#### Resources:

**Learning Resources:** There are many online resources and tutorials dedicated to using OpenVAS and Nmap with NSE scripts for vulnerability scanning in Kali Linux.

**Practice Environment:** It's recommended to practice using these tools in a controlled environment (e.g., a personal network) before using them on a production network.

**Ethical Hacking:** Always obtain permission before scanning any network that you don't have ownership or control over.



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### Implementation:

#### Option 1: OpenVAS

OpenVAS is a free and open-source vulnerability scanner pre-installed on Kali Linux. Here's how to use it:

Start the OpenVAS service: Open a terminal window and type:

```
sudo openvas-start
```

Access the Web Interface: Open a web browser and navigate to <https://localhost:9392>. You'll need to set up an administrator user and password for initial configuration.

The first time you access the interface, you'll likely encounter a security certificate error. You can proceed by adding an exception for the self-signed certificate if you're in a controlled environment (your personal network).

Configure a Scan: Once logged in, navigate to the "Scans" tab. Here you can configure a scan by:

Defining Targets: Specify the IP addresses or network ranges you want to scan.

Selecting a Scanner Profile: Choose a pre-configured profile or create a custom one.

Launching the Scan: Click the "Start Scan" button to initiate the vulnerability assessment.

View Reports: After the scan is complete, navigate to the "Reports" tab. Here you'll find detailed reports on identified vulnerabilities, including:

Severity level (critical, high, medium, low)

Description of the vulnerability

Potential impact

Recommendations for remediation

#### Option 2: Nmap with NSE Scripts

Nmap is a powerful network mapper that can be extended with NSE (Nmap Scripting Engine) scripts for vulnerability detection. Here's how to use it:

Basic Network Scan: Use the `nmap` command with flags to scan your network. For example:

```
nmap -sT -A 192.168.1.0/24
```

This performs a TCP SYN scan with additional information gathering on the subnet 192.168.1.0/24.

Identify NSE Scripts: Explore the available NSE scripts with the command:

```
nmap --script-list
```

This will list a vast library of scripts categorized by functionality.

Run Vulnerability Scan: Use the `--script` flag with the desired script name. For example:

```
nmap --script vuln 192.168.1.10
```

This will run vulnerability detection scripts against the IP address 192.168.1.10. You can specify multiple scripts separated by commas.



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### **Conclusion:**

In This experiment we explored vulnerability scanning using OpenVAS and Nmap with NSE scripts in Kali Linux. OpenVAS offers a user-friendly web interface and comprehensive vulnerability database, making it suitable for detailed scans and reports, albeit requiring some configuration. On the other hand, Nmap with NSE scripts provides a lightweight and quicker option for basic vulnerability checks, requiring specific knowledge of NSE scripts. Both tools are invaluable for identifying potential security weaknesses in networks. However, it's crucial to obtain permission before scanning any network that you don't own or control.