



SY B.Tech Semester-IV (AY 2022-23)
Computer Science and Engineering (Cybersecurity and Forensics)

Assign No.	List of Assignments
1.	Write a program using JAVA or Python or C++ to implement any classical cryptographic technique.
2.	Write a program using JAVA or Python or C++ to implement Feistel Cipher structure
3.	Write a program using JAVA or Python or C++ to implement S-AES symmetric key algorithm.
4.	Write a program using JAVA or Python or C++ to implement RSA asymmetric key algorithm.
5.	Write a program using JAVA or Python or C++ to implement integrity of message using MD5 or SHA
6.	Write a program using JAVA or Python or C++ to implement Diffie Hellman Key Exchange Algorithm
7.	Write a program using JAVA or Python or C++ to implement Digital signature using DSA.
8.	Demonstrate Email Security using - PGP or S/MIME for Confidentiality, Authenticity and Integrity.
9.	Demonstration of secured web applications system using SSL certificates and its deployment in Apache tomcat server
10.	Configuration and demonstration of Intrusion Detection System using Snort.
11.	Configuration and demonstration of NESSUS tool for vulnerability assessment.

Configuration and demonstration of NISSUS tool for vulnerability assessment.

Nessus

vulnerability scanner

Introduction

- Nessus is a remote security scanning tool, which scans a computer and raises an alert if it discovers any vulnerabilities that malicious hackers could use to gain access to any computer you have connected to a network. It does this by running over 1200 checks on a given computer, testing to see if any of these attacks could be used to break into the computer or otherwise harm it.

Download and Installation

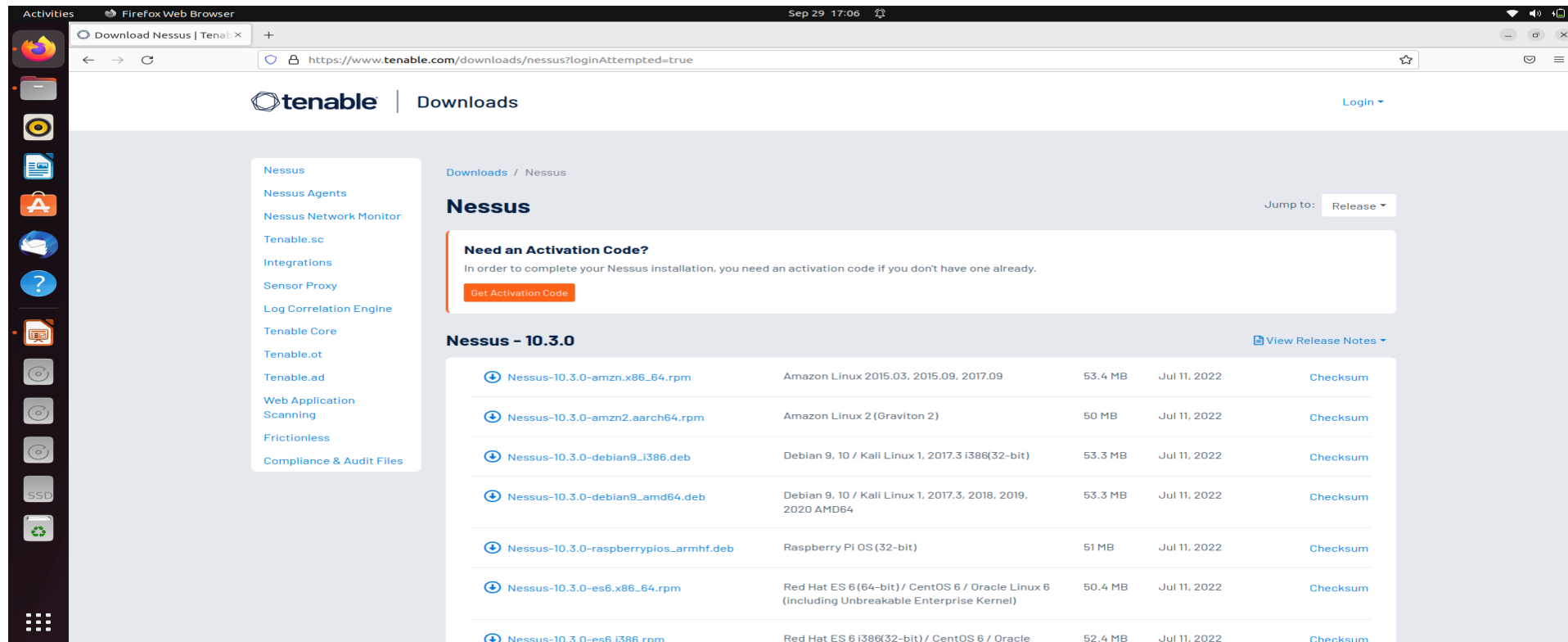
- You can download it from <https://www.tenable.com/downloads/nessus?loginAttempted=true>
- Once you download it then register <https://www.tenable.com/products/nessus/activation-code>
- Then install the tool.
- Open the Nessus in the browser <https://prajapati-hp-laptop-15-bs0xx:8834/#/scans/folders/my-scans>
- Create an account and then fill the activation code
- Then downloads the necessary plugins.
- After completion of installation you redirect to the login page and your credential their.

Functionalities

- Basic Network Scan
- Malware Scan
- Mobile Device Scan
- Host Discovery
- Policy Auditing
- Drown Detection
- PCI External Scan

Downloads and set-up process

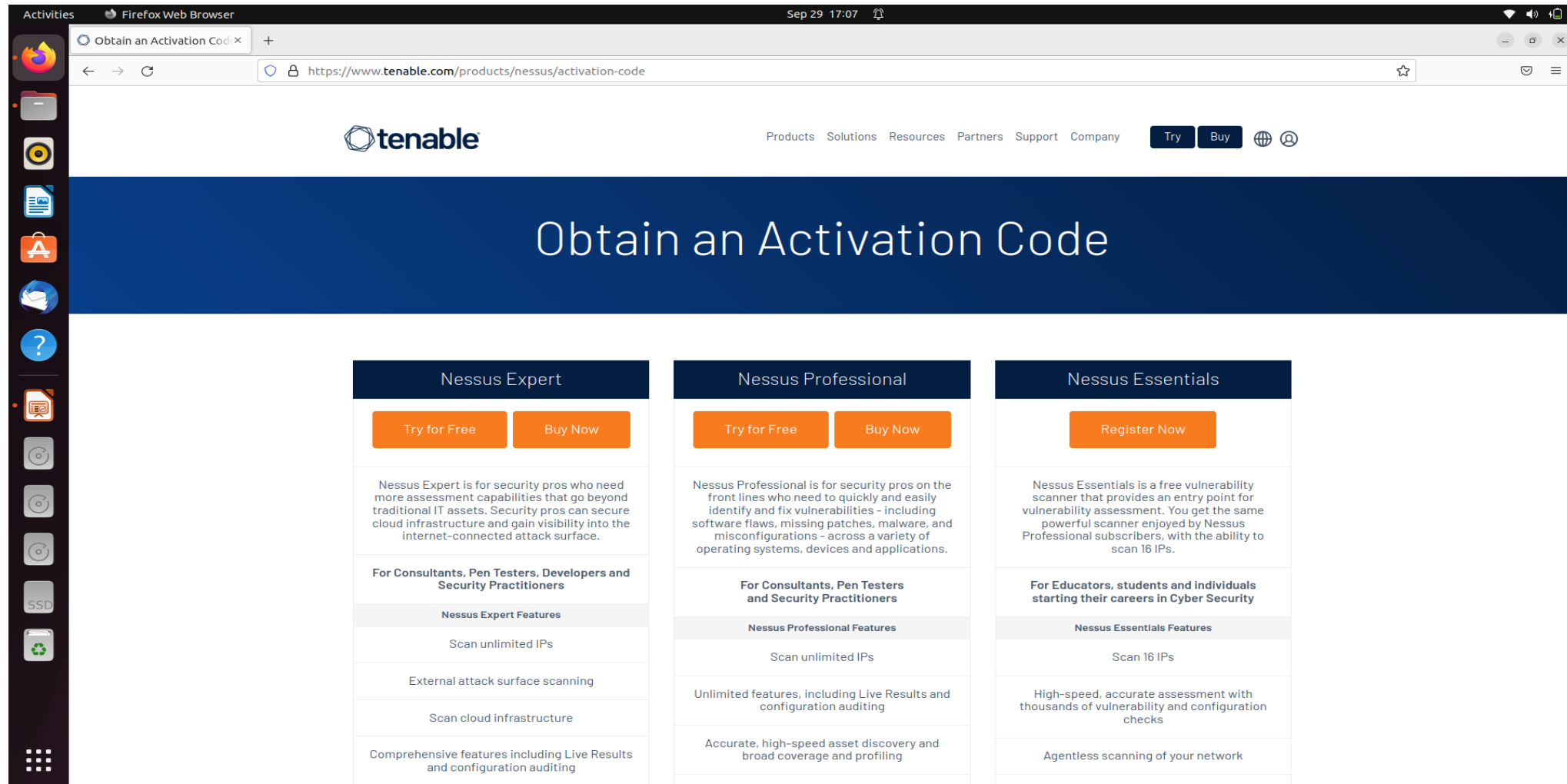
- Download package for whatever Linux system you have and get activation code:



The screenshot shows the Tenable Nessus Downloads page in a Firefox browser. The browser's address bar displays the URL <https://www.tenable.com/downloads/nessus?loginAttempted=true>. The page features the Tenable logo and a sidebar with navigation links: Nessus, Nessus Agents, Nessus Network Monitor, Tenable.sc, Integrations, Sensor Proxy, Log Correlation Engine, Tenable Core, Tenable.ot, Tenable.ad, Web Application Scanning, Frictionless, and Compliance & Audit Files. The main content area is titled 'Downloads / Nessus' and includes a 'Jump to: Release' dropdown. A banner asks 'Need an Activation Code?' with a 'Get Activation Code' button. Below this, the 'Nessus - 10.3.0' section displays a table of download links for various Linux distributions.

Download Link	Operating System	Size	Release Date	Action
Nessus-10.3.0-amzn.x86_64.rpm	Amazon Linux 2015.03, 2015.09, 2017.09	53.4 MB	Jul 11, 2022	Checksum
Nessus-10.3.0-amzn2.aarch64.rpm	Amazon Linux 2 (Graviton 2)	50 MB	Jul 11, 2022	Checksum
Nessus-10.3.0-debian9.i386.deb	Debian 9, 10 / Kali Linux 1, 2017.3 i386(32-bit)	53.3 MB	Jul 11, 2022	Checksum
Nessus-10.3.0-debian9.amd64.deb	Debian 9, 10 / Kali Linux 1, 2017.3, 2018, 2019, 2020 AMD64	53.3 MB	Jul 11, 2022	Checksum
Nessus-10.3.0-raspberrypi.armhf.deb	Raspberry Pi OS (32-bit)	51 MB	Jul 11, 2022	Checksum
Nessus-10.3.0-es6.x86_64.rpm	Red Hat ES 6 (64-bit) / CentOS 6 / Oracle Linux 6 (including Unbreakable Enterprise Kernel)	50.4 MB	Jul 11, 2022	Checksum
Nessus-10.3.0-es6.i386.rpm	Red Hat ES 6 i386(32-bit) / CentOS 6 / Oracle	52.4 MB	Jul 11, 2022	Checksum

- Register your credentials for Nessus essential:

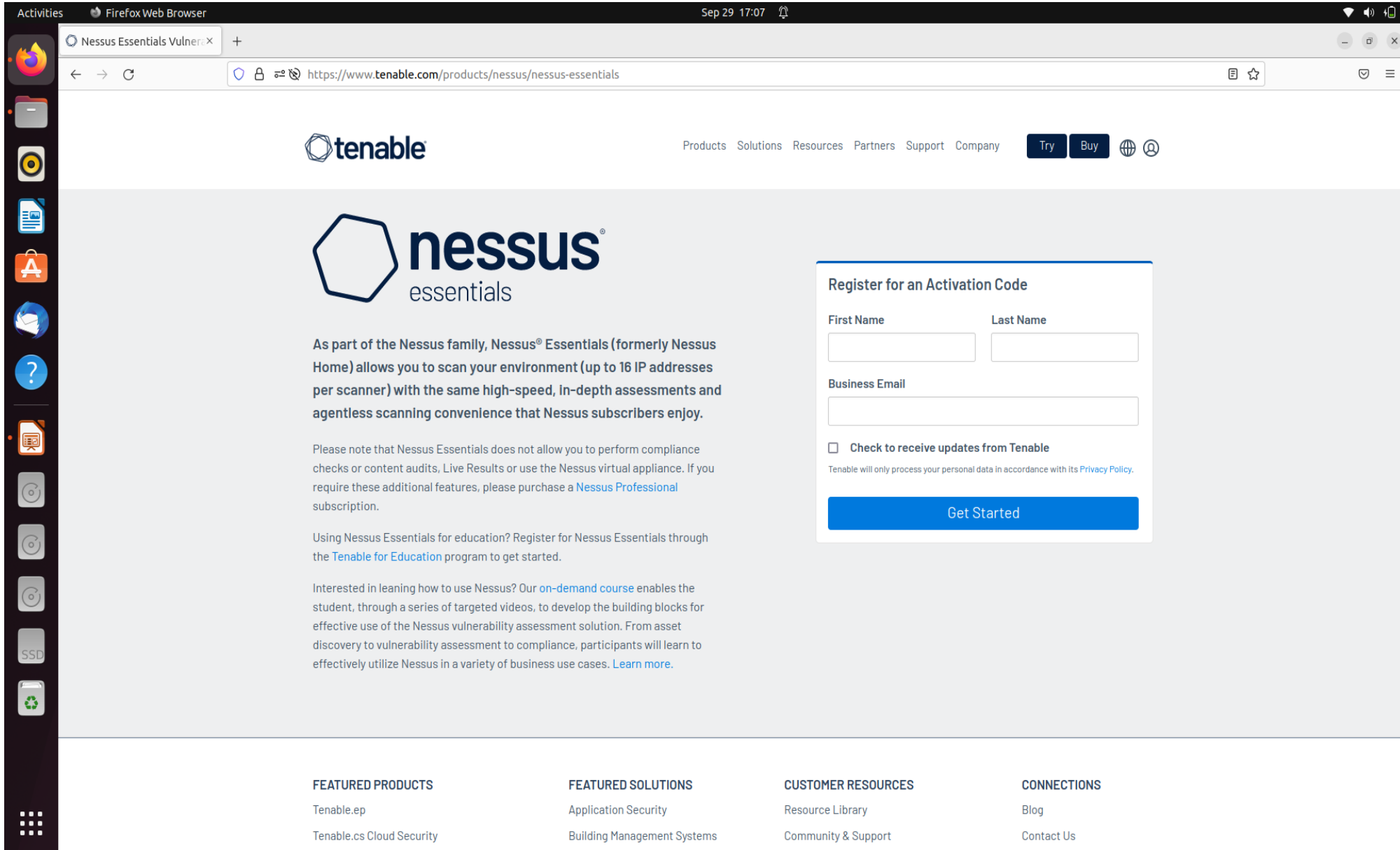


The screenshot shows a Firefox Web Browser window displaying the Tenable website. The address bar shows the URL <https://www.tenable.com/products/nessus/activation-code>. The page has a dark blue header with the Tenable logo and navigation links: Products, Solutions, Resources, Partners, Support, Company. There are buttons for 'Try' and 'Buy', and icons for a globe and a user profile.

Obtain an Activation Code

Nessus Expert	Nessus Professional	Nessus Essentials
Try for Free Buy Now	Try for Free Buy Now	Register Now
Nessus Expert is for security pros who need more assessment capabilities that go beyond traditional IT assets. Security pros can secure cloud infrastructure and gain visibility into the internet-connected attack surface.	Nessus Professional is for security pros on the front lines who need to quickly and easily identify and fix vulnerabilities - including software flaws, missing patches, malware, and misconfigurations - across a variety of operating systems, devices and applications.	Nessus Essentials is a free vulnerability scanner that provides an entry point for vulnerability assessment. You get the same powerful scanner enjoyed by Nessus Professional subscribers, with the ability to scan 16 IPs.
For Consultants, Pen Testers, Developers and Security Practitioners	For Consultants, Pen Testers and Security Practitioners	For Educators, students and individuals starting their careers in Cyber Security
Nessus Expert Features	Nessus Professional Features	Nessus Essentials Features
Scan unlimited IPs	Scan unlimited IPs	Scan 16 IPs
External attack surface scanning	Unlimited features, including Live Results and configuration auditing	High-speed, accurate assessment with thousands of vulnerability and configuration checks
Scan cloud infrastructure	Accurate, high-speed asset discovery and broad coverage and profiling	Agentless scanning of your network
Comprehensive features including Live Results and configuration auditing		

- Once register then follow below commands:



The screenshot shows a Firefox browser window with the URL <https://www.tenable.com/products/nessus/nessus-essentials>. The page features the Tenable logo and navigation links (Products, Solutions, Resources, Partners, Support, Company). The main content area includes the Nessus Essentials logo and a registration form titled "Register for an Activation Code". The form has fields for First Name, Last Name, and Business Email, along with a checkbox for "Check to receive updates from Tenable". A "Get Started" button is at the bottom of the form. Below the main content, there are four columns of links: FEATURED PRODUCTS (Tenable.ep, Tenable.cs Cloud Security), FEATURED SOLUTIONS (Application Security, Building Management Systems), CUSTOMER RESOURCES (Resource Library, Community & Support), and CONNECTIONS (Blog, Contact Us).

Activities FirefoxWeb Browser Sep 29 17:07

Nessus Essentials Vulnerability Scanner

Products Solutions Resources Partners Support Company Try Buy

nessus
essentials

As part of the Nessus family, Nessus® Essentials (formerly Nessus Home) allows you to scan your environment (up to 16 IP addresses per scanner) with the same high-speed, in-depth assessments and agentless scanning convenience that Nessus subscribers enjoy.

Please note that Nessus Essentials does not allow you to perform compliance checks or content audits, Live Results or use the Nessus virtual appliance. If you require these additional features, please purchase a [Nessus Professional](#) subscription.

Using Nessus Essentials for education? Register for Nessus Essentials through the [Tenable for Education](#) program to get started.

Interested in learning how to use Nessus? Our [on-demand course](#) enables the student, through a series of targeted videos, to develop the building blocks for effective use of the Nessus vulnerability assessment solution. From asset discovery to vulnerability assessment to compliance, participants will learn to effectively utilize Nessus in a variety of business use cases. [Learn more.](#)

Register for an Activation Code

First Name Last Name

Business Email

☐ Check to receive updates from Tenable

Tenable will only process your personal data in accordance with its [Privacy Policy](#).

Get Started

FEATURED PRODUCTS

Tenable.ep

Tenable.cs Cloud Security

FEATURED SOLUTIONS

Application Security

Building Management Systems

CUSTOMER RESOURCES

Resource Library

Community & Support

CONNECTIONS

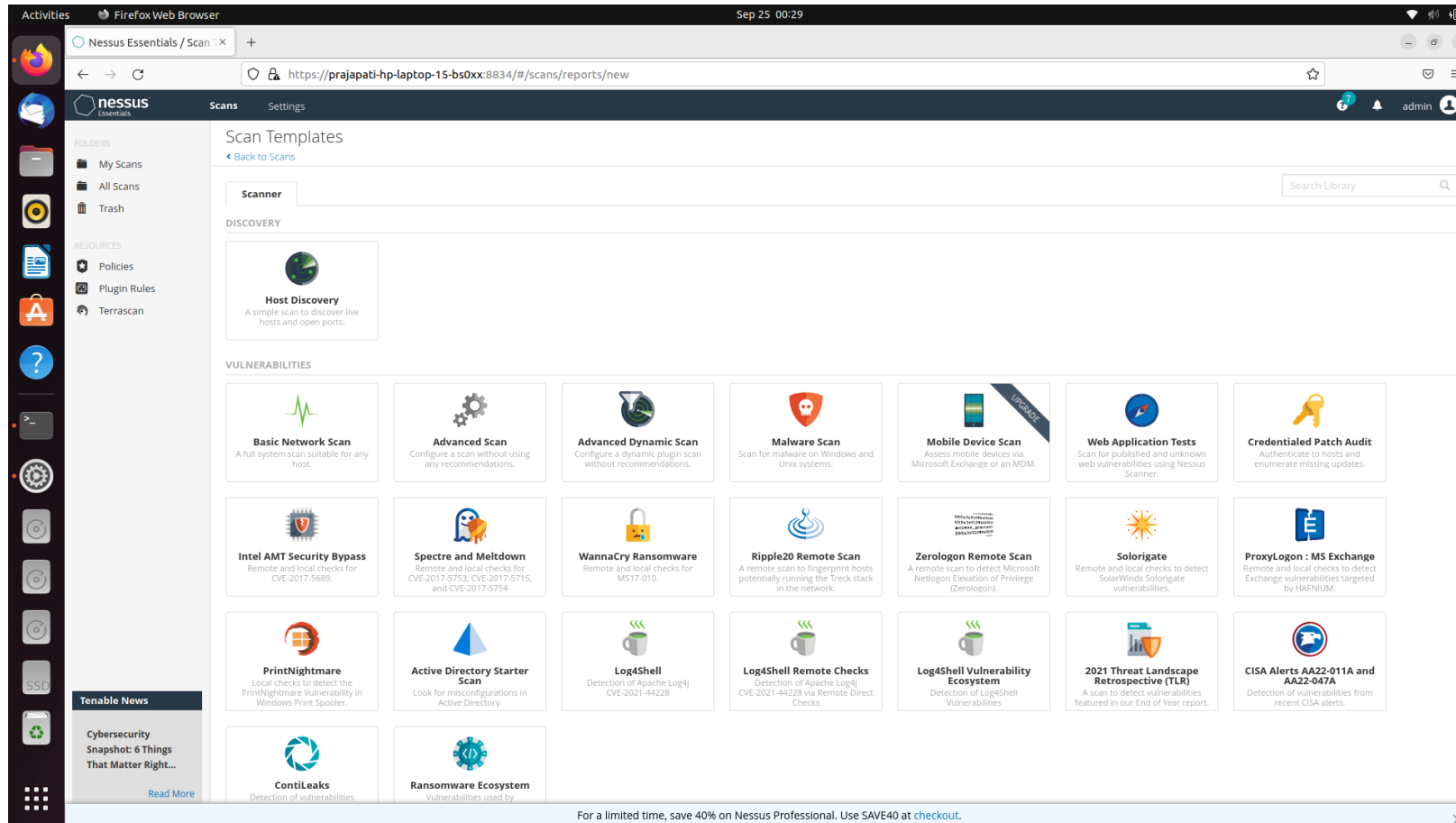
Blog

Contact Us

Follow commands

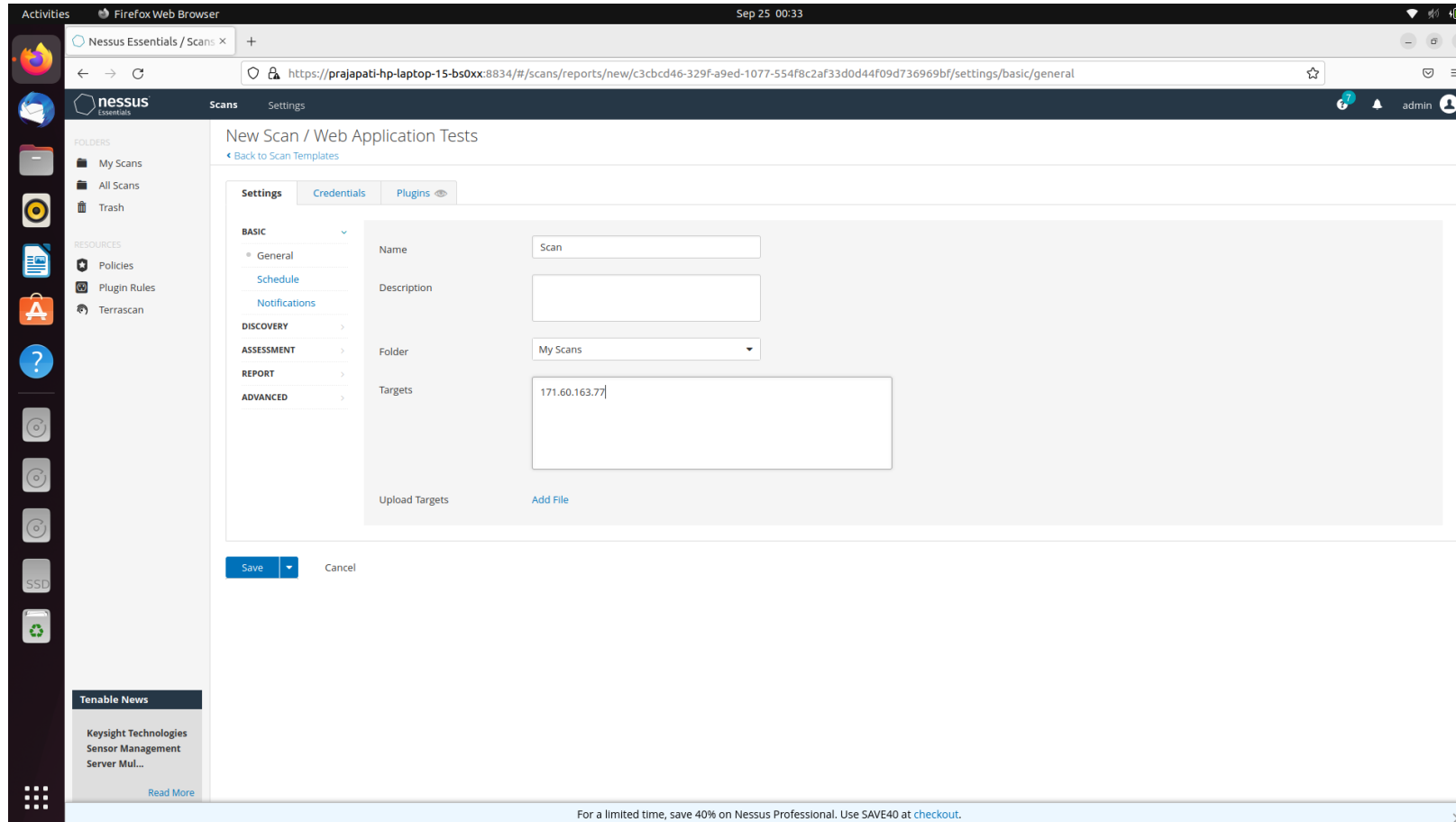
- `cd downloads`
- `ls`
- `sudo dpkg -i Nessus-10.3.0-ubuntu1404_amd64.deb`
- `systemctl start nessusd.service`
- `systemctl status nessusd.service`
- `sudo ufw allow 8834/tcp`

Choose the type of scan that you want to perform on your network



Here give the name to your scan and add little bit description and add the folder.

In targets field you can give the one or more IP addresses for scanning. And then click on launch button to start scan.



Now you see the pie chart and then go to the vulnerability section

The screenshot displays the Nessus Essentials web interface in a Firefox browser window. The URL is <https://prajapati-hp-laptop-15-bs0xx:8834/#/scans/reports/11/hosts>. The interface shows the 'scan1' report with tabs for Hosts, Vulnerabilities, and History. The 'Vulnerabilities' tab is active, showing a table with one host, 127.0.0.1, which has 5 vulnerabilities (represented by an orange bar) and 52 vulnerabilities (represented by a blue bar). The percentage of vulnerabilities is 99%.

Scan Details

- Policy: Basic Network Scan
- Status: Running
- Severity Base: CVSS v3.0
- Scanner: Local Scanner
- Start: Today at 12:38 AM

Vulnerabilities

A donut chart shows the distribution of vulnerability severity levels: Critical (red), High (orange), Medium (yellow), Low (light blue), and Info (dark blue). The chart is predominantly blue, indicating a high number of information-level vulnerabilities.

Tenable News

Finally Finding the 'Unknown Unknowns' Across Your...
[Read More](#)

For a limited time, save 40% on Nessus Professional. Use SAVE40 at [checkout](#).

It will show you all the available vulnerabilities present in my network and double click on any vulnerability to see the description about it.

The screenshot displays the Nessus Essentials web interface in a Firefox browser. The URL is <https://prajapati-hp-laptop-15-bs0xx:8834/#/scans/reports/11/vulnerabilities>. The interface shows a sidebar with navigation options like 'My Scans', 'All Scans', 'Trash', 'Policies', 'Plugin Rules', and 'Terrascan'. The main content area is titled 'scan1' and shows a list of 26 vulnerabilities. The table columns are 'Sev', 'Score', 'Name', 'Family', and 'Count'. The vulnerabilities are categorized by severity: MIXED (2), INFO (24). A 'Scan Details' panel on the right shows the scan policy as 'Basic Network Scan', status as 'Running', severity base as 'CVSS v3.0', scanner as 'Local Scanner', and start time as 'Today at 12:38 AM'. A 'Vulnerabilities' donut chart shows the distribution of severity levels: Critical (0), High (0), Medium (0), Low (0), and Info (24). A banner at the bottom promotes a 40% discount on Nessus Professional using the code SAVE40.

Sev	Score	Name	Family	Count
MIXED	...	SSL (Multiple Issues)	General	11
MIXED	...	TLS (Multiple Issues)	Service detection	7
INFO	...	SSH (Multiple Issues)	General	4
INFO	...	HTTP (Multiple Issues)	Web Servers	3
INFO	...	TLS (Multiple Issues)	General	3
INFO	...	Netstat Portscanner (SSH)	Port scanners	6
INFO	...	Service Detection	Service detection	4
INFO	...	Device Hostname	General	1
INFO	...	Device Type	General	1
INFO	...	Embedded Web Server Detection	Web Servers	1
INFO	...	Ethernet Card Manufacturer Detection	Misc.	1
INFO	...	Ethernet MAC Addresses	General	1
INFO	...	Host Fully Qualified Domain Name (FQDN) Resolution	General	1
INFO	...	Libcrypt Installed (Linux/UNIX)	Misc.	1
INFO	...	Linux Mounted Devices	General	1

Scan Details

- Policy: Basic Network Scan
- Status: Running
- Severity Base: CVSS v3.0
- Scanner: Local Scanner
- Start: Today at 12:38 AM

Vulnerabilities

- Critical
- High
- Medium
- Low
- Info

For a limited time, save 40% on Nessus Professional. Use SAVE40 at [checkout](#).

thank you!