

Name: _____

Date: _____

Score: _____

Best VPN for Ubuntu Linux

Configuring native VPN client connections, WireGuard, and leak protection on Ubuntu Linux.

UBUNTU VPN SETUPS LEARNING OVERVIEW

LEARNER

STUDENT STATUS

Network Defender Track

SECURE

CONNECTION STATUS

Shielding data packets

100%

LEAK DEFENSE

DNS & IPv6 leak protection

Welcome! This activity packet guides you through Ubuntu Linux VPN configurations. You will explore official APT package managers, Uncomplicated Firewall (UFW) rules, systemd-resolved DNS settings, and native desktop applet integration.

WORKSHEET CHECKPOINTS

- ☐ **Part 1-4:** Master VPN and network security configurations.
- ☐ **Part 5-7:** Solve crossword & word search puzzles.
- ☐ **Part 8-9:** Solve case studies & cipher challenge.
- ☐ **Part 10:** Review basic & advanced FAQ pages.
- ☐ **Part 11:** Explore 10 interesting real-world facts.

Open the VPN.com Best VPNs Guide

URL: <https://www.vpn.com/vpn/best-vpn-for-linux-ubuntu/>

Your Ubuntu VPN Learning Roadmap

- Install native VPN clients from repositories using APT package management.
- Configure custom firewall killswitches using Uncomplicated Firewall (UFW).
- Manage dynamic DNS settings and resolve leakage on systemd-resolved.
- Analyze performance benchmarks of WireGuard integration in the Ubuntu kernel.
- Troubleshoot connection handshakes and routing conflicts on active interfaces.

UBUNTU VPN SETUPS INSTRUCTIONS

Answer the multiple choice and true/false questions, complete the fill-in-the-blank sentences using the word bank, match definitions, and solve the crossword and word search puzzles. Apply your knowledge to APT packages, UFW rules, and systemd-resolved options.

APT PACKAGE REPOSITORIES & UNCOMPLICATED FIREWALL KILLSWITCHES (INTRODUCTION)

Configuring VPN connections on Ubuntu Linux requires downloading .deb package archives via APT, establishing dynamic DNS mapping rules on systemd-resolved, and securing unencrypted egress with UFW rules.

READ EACH CHECKPOINT CAREFULLY AND SELECT OR WRITE THE CORRECT RESPONSE.

Checkpoint 1: Multiple Choice Challenge

1 What is the primary command-line tool used to install VPN packages from repositories on Ubuntu?

- ☐ A. apt-get
- ☐ B. pacman
- ☐ C. dnf
- ☐ D. zypper

2 Which package format is standard for local VPN client software installations on Ubuntu?

- ☐ A. .rpm
- ☐ B. .deb
- ☐ C. .pkg.tar.zst
- ☐ D. .dmg

3 What is the default firewall management frontend on Ubuntu used to configure a killswitch?

- ☐ A. UFW
- ☐ B. Firewallld
- ☐ C. IPFW
- ☐ D. pf

4 Which VPN provider ranks #1 for Ubuntu, delivering up to 730 Mbps?

- ☐ A. NordVPN
- ☐ B. ExpressVPN
- ☐ C. Surfshark
- ☐ D. CyberGhost

5 Which protocol is built into newer Ubuntu kernels for fast, secure connections?

- ☐ A. PPTP
- ☐ B. WireGuard
- ☐ C. L2TP
- ☐ D. SSTP

Checkpoint 2: True or False Challenge

6 Question 6

Ubuntu requires compiling WireGuard from source on all versions since 20.04 LTS.

☐ True ☐ False

7 Question 7

NordVPN provides an official repository and native command-line client for Ubuntu.

☐ True ☐ False

8 Question 8

Uncomplicated Firewall (UFW) can block outgoing traffic when the VPN drops.

☐ True ☐ False

9 Question 9

Ubuntu uses systemd-resolved to manage DNS server assignments.

☐ True ☐ False

10 Question 10

ExpressVPN's Linux client features a complete Graphical User Interface (GUI) by default.

☐ True ☐ False

Checkpoint 3: Key Term Insertion

Read each sentence below and fill in the blank with the correct term from the Word Bank.

1. Administrators install official VPN repository keys and packages using the standard command _____.
2. VPN vendors distribute native client installers for Ubuntu in the standard _____.
3. DNS configurations and routing scopes are dynamically handled by _____.
4. Users configure a simple interface firewall to block leak traffic using the _____ firewall.
5. Static nameservers and domain parameters are managed within the main file _____.
6. Low-level fail-safe boundaries blocking unencrypted packet egress are built via _____.

VOCABULARY WORD BANK

APTGETINSTALL
RESOLVCONFIG

DEBPACKAGE
IPTABLESRULES

SYSTEMDRESOLV
NETWORKMGR

UNCOMPLICATED
WIREGUARDBIN

Write your answers here:

- | | | | |
|----|----------------------|----|----------------------|
| 1. | <input type="text"/> | 2. | <input type="text"/> |
| 3. | <input type="text"/> | 4. | <input type="text"/> |
| 5. | <input type="text"/> | 6. | <input type="text"/> |

Checkpoint 4: VPN & Network Concept Match

DEFINITION MATCHING

Match each vocabulary term on the left with its correct definition on the right by writing the corresponding letter (A-H) in the fillable input box.

APTGETINSTALL

G

System daemon that coordinates active physical and virtual interfaces.

DEBPACKAGE

D

Graphical or CLI frontend (UFW) managing netfilter packet rules.

SYSTEMDRESOLV

A

Command-line tool used to download and install packages from repos.

UNCOMPLICATED

E

Dynamic configuration file containing nameserver address pointers.

RESOLVCONFIG

H

Protocol binary wrapper used to configure secure virtual tunnel adapters.

IPTABLESRULES

C

System service managing network name query routing and caching.

NETWORKMGR

F

Netfilter packet filter parameters managing firewall boundaries.

WIREGUARDBIN

B

Compiled software archive format standard on Ubuntu/Debian.

Checkpoint 5: Crossword Puzzle

Solve the crossword puzzle by typing letters into the active white boxes. The numbers correspond to the clues below.



ACROSS

1. Process of wrapping data packets inside other packets (9)
4. Remote server that routes traffic and hides your IP (6)
8. Internet Service Provider, logs traffic unless encrypted (3)

DOWN

2. Rules determining how data is sent and encrypted (8)
3. Rate of data transfer across a path (9)
5. Blocking site access based on location (8)
6. Security system that monitors and blocks traffic (8)
7. State of being free from tracking or surveillance (7)

Checkpoint 5 Alternative: Accessible Crossword Clues

Screen-reader and keyboard users can type the crossword answers directly in the text fields below.

ACROSS CLUES

1 Across: Secure encapsulation method that routes console packet traffic. (9) (9 letters):

4 Across: Remote gaming host node that you connect to for lobbies. (6) (6 letters):

8 Across: Broadband service provider whose throttling policies you bypass. (3) (3 letters):

DOWN CLUES

2 Down: Handshake rules (such as OpenVPN) running on a compatible router. (8) (8 letters):

3 Down: Data capacity limits monitored on your home router during play. (9) (9 letters):

5 Down: Regional restriction that prevents accessing specific marketplace items. (8) (8 letters):

6 Down: Network shield that can block game ports and cause strict NAT. (8) (8 letters):

7 Down: Freedom from DDoS threats and online packet tracking while online. (7) (7 letters):

Checkpoint 6: Hidden Word Search

Find the 8 key vocabulary terms hidden in the grid below. Words can be horizontal, vertical, or diagonal.



VOCABULARY WORD LIST

APTGETINSTALL
RESOLVCONFIG

DEBPACKAGE
IPTABLESRULES

SYSTEMDRESOLV
NETWORKMGR

UNCOMPLICATED
WIREGUARDBIN

Checkpoint 6 Alternative: Accessible Vocabulary Matching

Match each of the 8 vocabulary terms from the Word Search to its correct definition by writing the letter (A-H) in the blank space.

VOCABULARY TERMS

- A. APTGETINSTALL
- B. DEBPACKAGE
- C. SYSTEMDRESOLV
- D. UNCOMPLICATED
- E. RESOLVCONFIG
- F. IPTABLESRULES
- G. NETWORKMGR
- H. WIREGUARDBIN

DEFINITIONS & MATCH FIELDS

- ☐ 1. Command-line tool used to download and install packages from repos.
- ☐ 2. Compiled software archive format standard on Ubuntu/Debian.
- ☐ 3. System service managing network name query routing and caching.
- ☐ 4. Graphical or CLI frontend
- ☐ 5. Dynamic configuration file containing nameserver address pointers.
- ☐ 6. Netfilter packet filter parameters managing firewall boundaries.
- ☐ 7. System daemon that coordinates active physical and virtual interfaces.
- ☐ 8. Protocol binary wrapper used to configure secure virtual tunnel adapters.

Checkpoint 7: Scrambled Word Challenge

Unscramble the letters below to reveal key Virtual Private Network (VPN) concepts and terms. Write your answers in the input boxes provided.

1. PTGETINSTALLA

5. ESOLVCONFIGR

2. EBPACKAGED

6. PTABLESRULESI

3. YSTEMDRESOLVS

7. ETWORKMGRN

4. NCOMPLICATEDU

8. IREGUARDBINW

Checkpoint 8: VPN & Network Case Studies

Apply the concepts you have learned to solve the real-world scenarios below.



CASE STUDY 1: LTS DESKTOP SECURITY

Scenario: A research scientist on Ubuntu LTS needs to secure sensitive telemetry uploads while connected to public campus Wi-Fi.

Discussion Question: How should the scientist deploy a native client and prevent DNS leaks?



CASE STUDY 2: UBUNTU SERVER FAIL-SAFE

Scenario: A system administrator wants to set up a secure gateway on an Ubuntu server that drops all outgoing connections if the VPN tunnel fails.

Discussion Question: What UFW commands must be run to create this outbound killswitch?

Final Challenge: Decrypting the Cipher

A network engineer secures routing channels and client tunnels. Use the Letter-to-Number key below to decrypt the message by writing the matching letters in the blank spaces.

LETTER-TO-NUMBER ENCRYPTION KEY

A=1	B=2	C=3	D=4	E=5	F=6	G=7	H=8	I=9	J=10	K=11	L=12	M=13
N=14	O=15	P=16	Q=17	R=18	S=19	T=20	U=21	V=22	W=23	X=24	Y=25	Z=26

21	2	21	14	20	21	12	9	14	21	24	18	21	14	19
14	1	20	9	22	5	23	9	18	5	7	21	1	18	4
3	12	9	5	14	20									

Decoded cybersecurity message:

TIP: EACH NUMBER REPRESENTS THE POSITION OF THAT LETTER IN THE ALPHABET (E.G. 1 = A, 2 = B, 26 = Z).

Checkpoint 10: Basic VPN FAQs (Part A)

Review the most common questions and answers regarding Virtual Private Networks (VPNs) and tunneling.

Q1: What is the standard VPN tool on Ubuntu?

NetworkManager is the default graphical tool on Ubuntu for managing VPN configurations.

Q2: How do I install OpenVPN on Ubuntu?

Run `sudo apt install openvpn network-manager-openvpn-gnome` to install client libraries.

Q3: How do I import an .ovpn file on Ubuntu?

Use GNOME Network settings, click +, choose 'Import from file...', and select your .ovpn profile.

Q4: Is WireGuard supported natively on Ubuntu?

Yes, WireGuard has been integrated directly into the Ubuntu kernel since version 20.04 LTS.

Q5: How do I start WireGuard via CLI on Ubuntu?

Execute `sudo wg-quick up wg0` to initialize the WireGuard interface.

Checkpoint 10: Basic VPN FAQs (Part B)

Review the most common questions and answers regarding Virtual Private Networks (VPNs) and tunneling.

Q6: What is systemd-resolved on Ubuntu?

It is the default system service that handles name resolution and local DNS caching.

Q7: How do I check if my VPN has a DNS leak on Ubuntu?

Run `resolvectl status` or check online leak-test resources to verify active nameservers.

Q8: What is UFW on Ubuntu?

UFW (Uncomplicated Firewall) is the default CLI firewall frontend designed to simplify iptables configuration.

Q9: How do I enable UFW on Ubuntu?

Run `sudo ufw enable` to activate the firewall framework with default rules.

Q10: Where are NordVPN CLI settings saved on Ubuntu?

The NordVPN daemon stores configurations under `/var/lib/nordvpn/` and logs under `/var/log/nordvpn/`.

Checkpoint 11: Advanced VPN FAQs (Part A)

Explore advanced technical aspects of VPN tunneling protocols, mobile client integrations, and enterprise deployment.

Q1: How do I create a fail-safe UFW VPN killswitch?

Set default deny outgoing, allow output to VPN server IP/port on physical device, and allow all outbound on tun0/wg0.

Q2: How do I resolve systemd-resolved DNS leaks on Ubuntu?

Install the openvpn-systemd-resolved helper package and add DNS update scripts to your OpenVPN config.

Q3: How do I connect to a VPN on headless Ubuntu Server?

Use wg-quick or `sudo openvpn --config profile.ovpn` to manage connections directly from the console.

Q4: How do I set up policy-based routing on Ubuntu?

Use `ip rule` and `ip route` commands or config scripts to direct specific IP subnets through the VPN interface.

Q5: What is the difference between apt and apt-get on Ubuntu?

Apt is a user-friendly frontend containing progress bars, while apt-get is robust and preferred for scripts.

Checkpoint 11: Advanced VPN FAQs (Part B)

Explore advanced technical aspects of VPN tunneling protocols, mobile client integrations, and enterprise deployment.

Q6: How do I run a script on VPN disconnect in NetworkManager?

Place executable scripts in the `/etc/NetworkManager/dispatcher.d/` directory to handle status events.

Q7: Can I configure double VPN tunnels on Ubuntu?

Yes, by configuring multi-routing tables and setting distinct gateway interfaces for separate subnets.

Q8: How do I monitor VPN bandwidth consumption on Ubuntu?

Install `vnstat` or `nload` and specify the virtual interface name using `nload tun0` or `wg0`.

Q9: What is the MTU size recommended for WireGuard on Ubuntu?

An MTU of 1420 bytes is standard to prevent packet fragmentation over IPv4/IPv6 networks.

Q10: How do I encrypt my VPN credentials file on Ubuntu?

Store them in a text file with restricted permissions (`chmod 600`) and reference it in the `.ovpn` file.

Part 11: 10 Real-World VPN Facts & Insights

Review real-world facts regarding VPN encryption speeds, protocol audits, mobile connectivity, and enterprise remote work.

1. VPN INSIGHT

Ubuntu LTS releases receive five years of standard security patches, ensuring stable VPN support.

2. VPN INSIGHT

The Uncomplicated Firewall (UFW) simplifies creating rules that drop unencrypted outgoing traffic.

3. VPN INSIGHT

systemd-resolved manages dynamic nameserver updates on physical and virtual interfaces.

4. VPN INSIGHT

Native .deb packages add official PPA repositories to automate client software updates.

5. VPN INSIGHT

The wg-quick wrapper manages routing table updates automatically when interfaces are enabled.

6. VPN INSIGHT

NordVPN ranks #1 on Ubuntu with up to 730 Mbps throughput using NordLynx technology.

7. VPN INSIGHT

GNOME NetworkManager supports importing and editing multi-protocol VPN profiles via GUI.

8. VPN INSIGHT

Headless Ubuntu server nodes rely on daemon configuration profiles for background execution.

9. VPN INSIGHT

UFW rules block IPv6 egress leaks to prevent location exposure on public networks.

10. VPN INSIGHT

Custom shell scripts in dispatcher directories automate cleanup tasks when connections drop.

Technical References & Sources

The study guide and interactive puzzles are compiled from global technical standards, specifications, and regulatory frameworks.

SCHOLARLY & INDUSTRY REFERENCES

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- [9] OpenVPN Project. (2026). OpenVPN Client Configuration and Management. Retrieved from <https://openvpn.net>
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Answer Key: Checkpoint 1 - Multiple Choice

1 APT package manager

APT INSTALL

Correct Answer: A

TEACHING NOTE

APT is the primary tool used to download and install official VPN client packages on Ubuntu.

Citation: Ubuntu Security [Ref 1].

2 Debian Package

.DEB FILES

Correct Answer: B

TEACHING NOTE

Standard software archives for manual installation on Ubuntu use the compiled .deb package format.

Citation: Ubuntu Security [Ref 1].

3 Uncomplicated Firewall

UFW TOOL

Correct Answer: A

TEACHING NOTE

UFW provides a simplified command-line and graphical configuration panel to manage firewall rules.

Citation: Ubuntu Security [Ref 1].

4 NordVPN #1

730 MBPS

Correct Answer: A

TEACHING NOTE

NordVPN holds the top performance spot for Ubuntu, reaching speed benchmark peaks of 730 Mbps.

Citation: NordVPN Linux [Ref 3].

5 WireGuard Protocol

KERNEL DRIVER

Correct Answer: B

TEACHING NOTE

WireGuard is integrated directly as a native kernel driver in modern Ubuntu LTS distributions.

Citation: WireGuard Linux [Ref 2].

Answer Key: Checkpoint 2 - True or False

6 Ubuntu Kernel WG

LTS WIREGUARD

Correct Answer: False

TEACHING NOTE

WireGuard is integrated into modern Ubuntu LTS kernels, so manual compilation is not required.

Citation: WireGuard [Ref 2].

7 Official Repo

NORDVPN PPA

Correct Answer: True

TEACHING NOTE

NordVPN provides an official repository to automatically update its CLI client on Ubuntu.

Citation: NordVPN [Ref 3].

8 UFW Firewall Rules

UFW KILLSWITCH

Correct Answer: True

TEACHING NOTE

Uncomplicated Firewall can block all outgoing traffic if the virtual VPN interface disconnects.

Citation: Ubuntu Security [Ref 1].

9 DNS Management

SYSTEMD-RESOLVED

Correct Answer: True

TEACHING NOTE

Ubuntu relies on systemd-resolved to dynamically allocate DNS nameservers to virtual links.

Citation: Ubuntu Security [Ref 1].

10 No Native GUI App

CLI CLIENT

Correct Answer: False

TEACHING NOTE

Standard ExpressVPN and NordVPN Linux client packages run as console CLI services.

Citation: ExpressVPN CLI [Ref 4].

Vocabulary Keys & Grading Rubric

Instructor Grading Rubric: Award 1 point for each correct matching (8 points total) and context term (6 points total).

CHECKPOINT 4: CONCEPT MATCH KEY

A APTGETINSTALL

B DEBPACKAGE

C SYSTEMDRESOLV

D UNCOMPLICATED

E RESOLVCONFIG

F IPTABLESRULES

G NETWORKMGR

H WIREGUARDBIN

CHECKPOINT 3: KEY TERM KEY

1 APTGETINSTALL

2 DEBPACKAGE

3 SYSTEMDRESOLV

4 UNCOMPLICATED

5 RESOLVCONFIG

6 IPTABLESRULES

DISCUSSION NOTES FOR INSTRUCTORS

Valuation Accuracy:

Verify that students understand how domain length, extension (.com, .ai), and commercial search volume drive appraisal pricing.

Escrow Security:

Emphasize that funds are held in licensed third-party holding accounts prior to domain WHOIS transfer verification.

Stealth Representation:

Highlight the role of NDAs and third-party representation in preventing speculative price gouging during corporate procurement.

Puzzles Keys & Instructor Notes

WORD SEARCH SOLUTION

R	I	P	T	A	B	L	E	S	R	U	L	E	S	V
A	P	T	G	E	T	I	N	S	T	A	L	L	Y	Y
W	I	R	E	G	U	A	R	D	B	I	N	T	S	N
U	N	C	O	M	P	L	I	C	A	T	E	D	T	H
G	Z	D	F	N	C	Y	Z	Z	U	S	V	E	E	Z
F	H	V	E	O	E	Z	Z	R	Q	O	L	M	M	V
D	L	D	U	B	U	T	P	H	Q	B	O	A	D	T
L	Q	R	J	O	P	O	W	R	E	Z	U	D	R	E
Q	E	W	V	E	S	A	P	O	X	I	P	W	E	Q
X	W	D	I	F	J	Z	C	Q	R	O	T	V	S	D
Y	J	R	X	Z	G	Z	Z	K	Q	K	M	E	O	E
Y	H	A	I	S	J	Z	D	C	A	B	M	Y	L	T
S	M	V	T	Z	O	Z	V	Z	O	G	Q	G	V	A
V	P	R	Y	F	A	S	U	U	Z	J	E	F	R	N
R	E	S	O	L	V	C	O	N	F	I	G	E	R	E

CROSSWORD SOLUTION

INSTRUCTOR GUIDE FOR CROSSWORD SOLUTIONS

ACROSS CLUES

- 1 Across:** **TUNNELING** Process of wrapping data packets. (3, 5)
- 4 Across:** **SERVER** Remote computer routing traffic. (1, 0)
- 8 Across:** **ISP** Internet Service Provider. (1, 9)

DOWN CLUES

- 2 Down:** **PROTOCOL** Rules determining data transmission. (0, 5)
- 3 Down:** **BANDWIDTH** Rate of data transfer. (1, 7)
- 5 Down:** **GEOBLOCK** Location website restriction. (0, 1)
- 6 Down:** **FIREWALL** Security monitor barrier. (0, 9)
- 7 Down:** **PRIVACY** State of freedom from tracking. (1, 11)

Scrambled Words & Cipher Solution Key

Grading key for the vocabulary word unscramble activity and Secret Cipher Challenge.

WORD UNSCRAMBLE KEY

1. PTGETINSTALLA

APTGETINSTALL

5. ESOLVCONFIGR

RESOLVCONFIG

2. EBPACKAGED

DEBPACKAGE

6. PTABLESRULESI

IPTABLESRULES

3. YSTEMDRESOLVS

SYSTEMDRESOLV

7. ETWORKMGRN

NETWORKMGR

4. NCOMPLICATEDU

UNCOMPLICATED

8. IREGUARDBINW

WIREGUARDBIN

SECRET CIPHER CHALLENGE KEY

"UBUNTU LINUX RUNS NATIVE WIREGUARD CLIENT"

VPN & Network Case Studies Solution Key

A Case Study 1: LTS Desktop Security

[Instructor Solution](#)

GRADING GUIDELINE

Student answers should cover the following points:

- **Scenario Analysis:** A research scientist on Ubuntu LTS needs to secure sensitive telemetry uploads while connected to public campus Wi-Fi.
- **Recommended Strategy & Solution:** Install the provider's .deb package, import connection credentials, and configure systemd-resolved to route all DNS queries through the tunnel.

B Case Study 2: Ubuntu Server Fail-safe

[Instructor Solution](#)

GRADING GUIDELINE

Student answers should cover the following points:

- **Scenario Analysis:** A system administrator wants to set up a secure gateway on an Ubuntu server that drops all outgoing connections if the VPN tunnel fails.
- **Recommended Strategy & Solution:** Run ufw default deny outgoing, allow out on tun0 to any, and allow out to the VPN server's specific IP and port.