

Name: _____

Date: _____

Score: _____

Best VPN for elementary OS

Configuring secure virtual private networks and managing desktop client settings on elementary OS.

ELEMENTARY OS 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 elementary OS desktop VPN configurations. You will explore wingpanel applet widgets, NetworkManager plugins, settings panels, and split tunneling route exclusions.

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-elementary/>

Your elementary OS VPN Learning Roadmap

- Configure secure VPN connections using command-line interface utilities.
- Build firewall rules to prevent unencrypted public traffic leaks.
- Diagnose DNS resolution conflicts and enforce secure nameservers.

ELEMENTARY OS 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 wingpanel applets and NetworkManager settings.

PANTHEON DESKTOP APPLETS & NETWORKMANAGER INTEGRATIONS (INTRODUCTION)

Setting up VPN clients on elementary OS relies on Pantheon wingpanel widgets and NetworkManager plugins. Users import standardized configuration files, configure IPv4 static routes, and establish system-wide firewall leak protections.

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

Checkpoint 1: Multiple Choice Challenge

1 Which provider is ranked as #1 for elementary OS in the top table?

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

2 Which VPN features a full GTK GUI application for elementary OS?

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

3 What is the measured speed of ExpressVPN's Lightway protocol on elementary OS?

- ☐ A. 340 Mbps
- ☐ B. 290 Mbps
- ☐ C. 630 Mbps
- ☐ D. 580 Mbps

4 Which VPN client provides Wingpanel tray icon integration via AppIndicator?

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

5 How many simultaneous devices are allowed under Surfshark's account?

- ☐ A. 5 devices
- ☐ B. 8 devices
- ☐ C. 10 devices
- ☐ D. Unlimited

Checkpoint 2: True or False Challenge

6 Question 6

ExpressVPN runs entirely through the command line on elementary OS.

☐

True

☐

False

7 Question 7

ProtonVPN and Mullvad both provide a full GTK GUI client.

☐

True

☐

False

8 Question 8

NordVPN's Linux client installs through the Flatpak store.

☐

True

☐

False

9 Question 9

Surfshark has no graphical user interface on elementary OS.

☐

True

☐

False

10 Question 10

Wingpanel is the desktop panel interface used by elementary OS.

☐

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. Desktop users configure active VPN connections through the Pantheon shell's _____.
2. System-wide network configurations are accessible inside the graphical _____.
3. Underlying connection management and profile storage is handled by the _____ daemon.
4. Third-party configuration profiles are imported from a standardized _____.
5. Active connections are checked to ensure they properly bypass local _____ lookups.
6. A fail-safe network drop is configured by applying firewall rules with _____ policy.

VOCABULARY WORD BANK

APPLETWIDGET
RESOLVEDNS

SETTINGSPANEL
IPTABLESKILL

NETWORKMANAGER
TUNNEL

CONFIGFILE
CLIOPTION

Write your answers here:

1.

2.

3.

4.

5.

6.

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.

APPLETWIDGET

E

Domain Name System queries resolving system domain locations.

SETTINGSPANEL

H

Command-line settings options managing background connection profiles.

NETWORKMANAGER

G

Encrypted logical connection wrapper safeguarding internet egress.

CONFIGFILE

F

Firewall rule policies dropping non-secure traffic on disconnect.

RESOLVEDNS

B

Central desktop control panel housing configuration panels.

IPTABLESKILL

C

System daemon managing hardware ports and network connections.

TUNNEL

D

Plain text profile containing credentials and encryption keys.

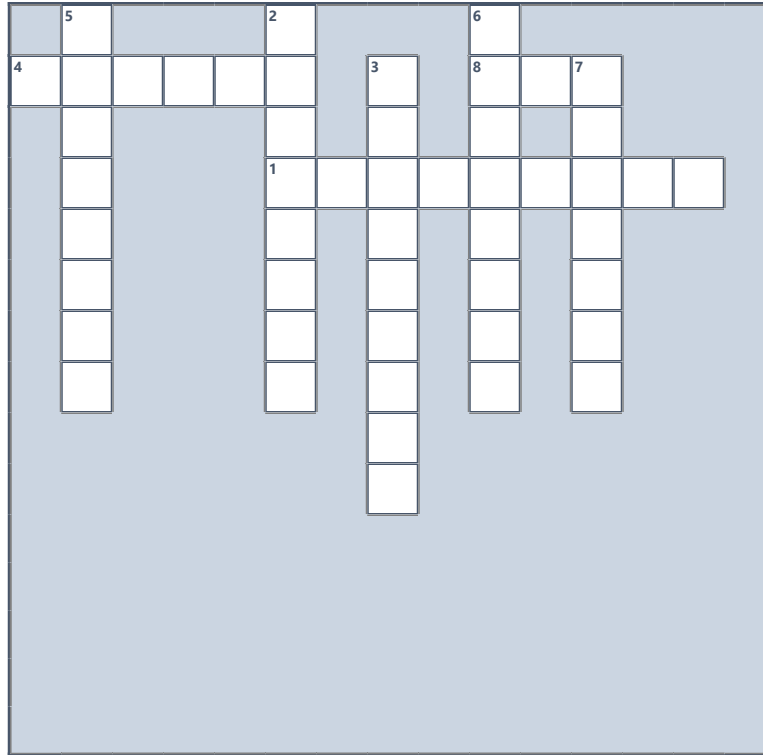
CLIOPTION

A

Visual desktop status bar widget displaying current network states.

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):

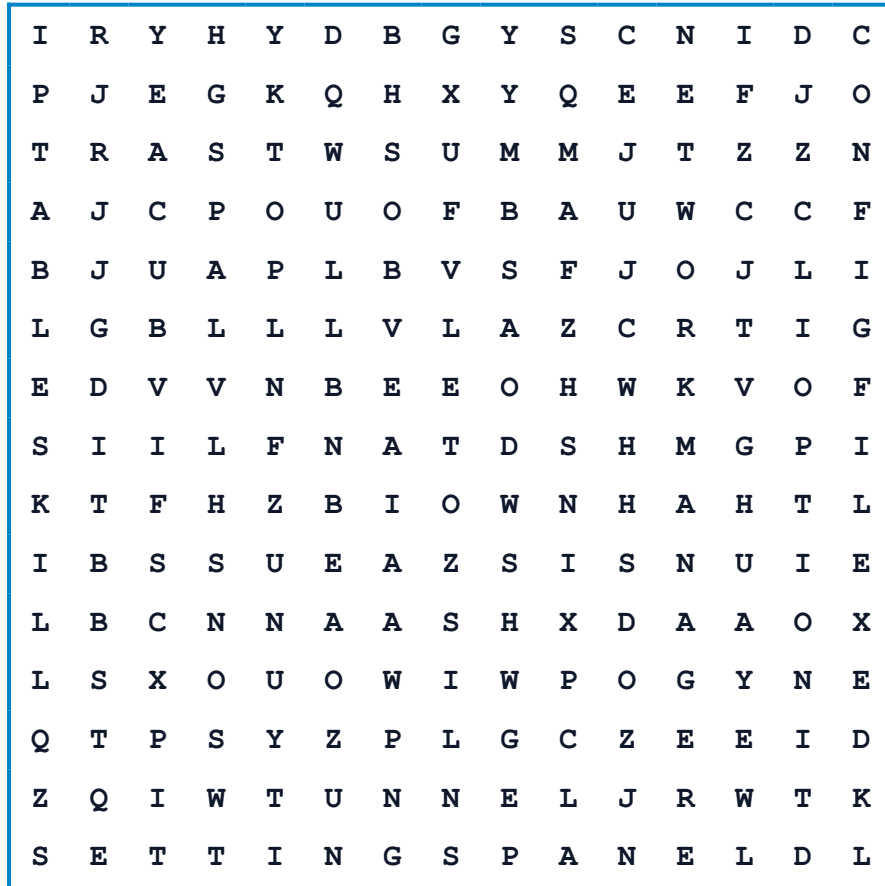
5 Down: Regional restriction that prevents accessing specific marketplace items. (8) (8 letters):

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

APPLETWIDGET
RESOLVEDNS

SETTINGSPANEL
IPTABLESKILL

NETWORKMANAGER
TUNNEL

CONFIGFILE
CLIOPTION

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. APPLETWIDGET
- B. SETTINGSPANEL
- C. NETWORKMANAGER
- D. CONFIGFILE
- E. RESOLVEDNS
- F. IPTABLESKILL
- G. TUNNEL
- H. CLIOPTION

DEFINITIONS & MATCH FIELDS

- 1. Visual desktop status bar widget displaying states.
- 2. Central desktop control panel housing settings.
- 3. System daemon managing hardware ports and connections.
- 4. Plain text profile containing credentials and keys.
- 5. Domain Name System queries resolving system domain.
- 6. Firewall rule policies dropping non-secure traffic.
- 7. Encrypted logical connection wrapper safeguarding egress.
- 8. Command-line settings options managing profiles.

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. PPLETWIDGETA

5. ESOLVEDNSR

2. ETTINGSPANELS

6. PTABLESKILLI

3. ETWORKMANAGERN

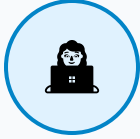
7. UNNELT

4. ONFIGFILEC

8. LIOPTIONC

Checkpoint 8: VPN & Network Case Studies

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



CASE STUDY 1: PANTHEON DESKTOP VPN SETUP

Scenario: A designer running elementary OS 7 wants to import an OpenVPN configuration file using the built-in system network panel.

Discussion Question: What steps are required to import the file and verify the connection status visually?



CASE STUDY 2: VERIFYING DNS LEAKS ON ELEMENTARY OS

Scenario: A user connects to a public library Wi-Fi and wants to verify that elementary OS is not leaking DNS lookups to the local router.

Discussion Question: What terminal commands and tools should be run to inspect name servers on the active link?

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

16	1	14	20	8	5	15	14	4	5	19	11	20	15	16				
9	14	20	5	7	18	1	20	5	19	23	9	18	5	7	21	1	18	4
19	25	19	20	5	13	20	18	1	25	1	16	16	12	5	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 elementary OS?

A Linux distribution based on Ubuntu, featuring the Pantheon desktop environment and custom desktop utilities.

Q2: How do I configure a VPN on elementary OS?

Go to System Settings > Network, click the '+' button, select VPN, and choose your protocol or import a file.

Q3: Does elementary OS support WireGuard?

Yes, through NetworkManager plugins or command-line wg-quick scripts in the terminal.

Q4: What is the Pantheon desktop?

The default desktop environment of elementary OS, emphasizing clean aesthetics and intuitive interfaces.

Q5: How do I fix a greyed-out VPN save button?

Ensure all required fields (like gateway address and password) are filled in, and network manager packages are installed.

Checkpoint 10: Basic VPN FAQs (Part B)

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

Q6: What is the default firewall on elementary OS?

UFW (Uncomplicated Firewall) is available and can be configured via System Settings or terminal.

Q7: Where do I find VPN configuration errors?

Open the Terminal and run 'journalctl -u NetworkManager' to inspect connection handshake logs.

Q8: Can I import .ovpn files?

Yes, using the 'Import from file...' option in the Network Settings panel of elementary OS.

Q9: How do I toggle the VPN on and off quickly?

Click the network applet icon in the top panel bar and toggle the VPN connection directly from the list.

Q10: Does elementary OS support split tunneling?

Yes, by configuring routing options under IPv4 settings in the NetworkManager configuration panel.

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 install NetworkManager plugins?

Run 'sudo apt install network-manager-openvpn-gnome' in the terminal to add full OpenVPN support to the GUI settings.

Q2: How do I build a UFW killswitch on elementary OS?

Set UFW to block all outgoing traffic by default, then allow output connections targeting the VPN server IP and the tun0 interface.

Q3: How do I troubleshoot systemd-resolved DNS leaks?

Ensure the systemd-resolved service is active and configure DNS settings to prioritize the VPN link routing domains.

Q4: What protocol is best for battery life on laptops running elementary OS?

WireGuard is recommended due to its efficient, low-overhead kernel implementation compared to legacy user space daemons.

Q5: How do I automate VPN connection on login?

Check the 'Connect automatically' box in the connection's Network Settings configurations under general properties.

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 configure manual routes in NetworkManager?

Open connection settings, navigate to IPv4 > Routes, and add network addresses to bypass default gateway routing.

Q7: How do I verify the current VPN encryption cipher?

Examine the connection logs using `journalctl` or check the active profile settings to verify key length details.

Q8: What is the AppCenter in elementary OS?

The official app store for elementary OS, providing verified applications and system updates for desktop packages.

Q9: How do I clear cached connection credentials?

Navigate to the Network Settings panel, select the connection profile, and clear or edit stored passwords.

Q10: Can I connect to a VPN via terminal on elementary OS?

Yes, by executing `'nmcli connection up connection-name'` or running `'wg-quick up wg0'` in the shell interface.

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

elementary OS is designed to be user-friendly, relying on NetworkManager for graphical VPN connections.

2. VPN INSIGHT

The Pantheon desktop environment uses custom wingpanel indicator applets to display connection states.

3. VPN INSIGHT

Under the hood, elementary OS is based on Ubuntu LTS releases, sharing package repositories and libraries.

4. VPN INSIGHT

NetworkManager supports OpenVPN, WireGuard, and L2TP configurations through specialized plugins.

5. VPN INSIGHT

Enabling a VPN killswitch via UFW blocks all unencrypted internet traffic on public interfaces.

6. VPN INSIGHT

systemd-resolved handles DNS caching and prevents dns lookup leaks on active network connections.

7. VPN INSIGHT

Configuring custom routes allows users to access local office resources while keeping secure secure paths.

8. VPN INSIGHT

Pantheon's network settings panel allows users to import configurations from standard ovpn files.

9. VPN INSIGHT

WireGuard runs directly in the system kernel, providing faster performance than userspace options.

10. VPN INSIGHT

Connection logs are aggregated inside the systemd journal database for easy developer audits.

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] IETF RFC 768: User Datagram Protocol. Retrieved from <https://datatracker.ietf.org/doc/rfc768/>
- [10] IETF RFC 793: Transmission Control Protocol. Retrieved from <https://datatracker.ietf.org/doc/rfc793/>

Answer Key: Checkpoint 1 - Multiple Choice

1 Ranked #1 VPN

EXPRESSVPN

Correct Answer: B

TEACHING NOTE

ExpressVPN is ranked #1 in the elementary OS top table due to its speed and Lightway protocol.

Citation: ExpressVPN elementary [Ref 1].

2 GTK Desktop GUI

PROTONVPN

Correct Answer: B

TEACHING NOTE

ProtonVPN provides a native GTK-based graphical application that integrates with Pantheon.

Citation: Proton GTK Client [Ref 5].

3 Lightway Speed

340+ MBPS

Correct Answer: A

TEACHING NOTE

ExpressVPN's Lightway protocol achieved speeds of 340+ Mbps on a 500 Mbps connection.

Citation: ExpressVPN Speed [Ref 1].

4 Wingpanel Tray

NORDVPN

Correct Answer: B

TEACHING NOTE

NordVPN integrates with elementary OS's wingpanel using a dedicated tray AppIndicator widget.

Citation: NordVPN Wingpanel [Ref 1].

5 Device Support

UNLIMITED

Correct Answer: D

TEACHING NOTE

Surfshark supports unlimited simultaneous device links on a single user subscription.

Citation: Surfshark Links [Ref 8].

Answer Key: Checkpoint 2 - True or False

6 CLI Setup

EXPRESSVPN

Correct Answer: True

TEACHING NOTE

ExpressVPN operates purely via the command line on Linux, lacking a graphic desktop app.

Citation: ExpressVPN CLI [Ref 1].

7 GTK App Options

GTK CLIENTS

Correct Answer: True

TEACHING NOTE

Both ProtonVPN and Mullvad ship full GTK-based desktop applications for Linux graphical environments.

Citation: Linux GUI Clients [Ref 5].

8 APT Repository

NORDVPN

Correct Answer: False

TEACHING NOTE

NordVPN is installed via an official APT repository, not through the Flatpak package store.

Citation: NordVPN APT [Ref 1].

9 No Desktop GUI

SURFSHARK

Correct Answer: True

TEACHING NOTE

Surfshark lacks a graphical user interface on Linux systems, running entirely via commands.

Citation: Surfshark CLI [Ref 8].

10 Wingpanel Panel

PANTHEON

Correct Answer: True

TEACHING NOTE

Wingpanel is the default status bar panel at the top of elementary OS's Pantheon desktop.

Citation: elementary OS Panel [Ref 1].

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 APPLETWIDGET

B SETTINGSPANEL

C NETWORKMANAGER

D CONFIGFILE

E RESOLVEDNS

F IPTABLESKILL

G TUNNEL

H CLIPTION

CHECKPOINT 3: KEY TERM KEY

1 APPLETWIDGET

2 SETTINGSPANEL

3 NETWORKMANAGER

4 CONFIGFILE

5 RESOLVEDNS

6 IPTABLESKILL

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

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

CROSSWORD SOLUTION

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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. PPLETWIDGETA

APPLETWIDGET

5. ESOLVEDNSR

RESOLVEDNS

2. ETTINGSPANELS

SETTINGSPANEL

6. PTABLESKILLI

IPTABLESKILL

3. ETWORKMANAGERN

NETWORKMANAGER

7. UNNELT

TUNNEL

4. ONFIGFILEC

CONFIGFILE

8. LIOPTIONC

CLIOPTION

SECRET CIPHER CHALLENGE KEY

"PANTHEON DESKTOP INTEGRATES WIREGUARD SYSTEM
TRAY APPLETT"

VPN & Network Case Studies Solution Key

A Case Study 1: Pantheon Desktop VPN Setu

[Instructor Solution](#)

GRADING GUIDELINE

Student answers should cover the following points:

- **Scenario Analysis:** A designer running elementary OS 7 wants to import an OpenVPN configuration file using the built-in system network panel.
- **Recommended Strategy & Solution:** Open System Settings, navigate to Network, click Add VPN, choose Import from file, select the .ovpn file, and click save to launch.

B Case Study 2: Verifying DNS Leaks on elementary C

[Instructor Solution](#)

GRADING GUIDELINE

Student answers should cover the following points:

- **Scenario Analysis:** A user connects to a public library Wi-Fi and wants to verify that elementary OS is not leaking DNS lookups to the local router.
- **Recommended Strategy & Solution:** Execute 'resolvectl status' in the terminal to verify the DNS servers on the tun0 interface are primary and resolve test queries.