

Name: _____

Date: _____

Score: _____

Best VPN for Manjaro Linux

Deploying secure VPN clients and pacman AUR packages on Manjaro distributions.

MANJARO LINUX 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 Manjaro Linux VPN configurations. You will explore AUR packages, yay command options, systemd-resolved DNS settings, and resolvectl link troubleshooting.

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-manjaro/>

Your Manjaro Linux 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.

MANJARO LINUX 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 pacman AUR packages and resolvectl DNS.

ARCH USER REPOSITORY & DYNAMIC NAMESERVER MANAGEMENT (INTRODUCTION)

Deploying VPN client software on Manjaro Linux involves utilizing the AUR repository via yay, managing systemd-resolved to prevent DNS lookup leaks, and handling firewall conflicts configured via Manjaro Settings Manager.

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

Checkpoint 1: Multiple Choice Challenge

1 What is NordVPN's maximum measured speed in the Manjaro Speed Lab?

- ☐ A. 730 Mbps
- ☐ B. 580 Mbps
- ☐ C. 630 Mbps
- ☐ D. 695 Mbps

2 Which tool is used as the default CLI AUR helper on Manjaro?

- ☐ A. yay
- ☐ B. pacman
- ☐ C. dnf
- ☐ D. apt

3 Which GUI client is available on Manjaro and has GTK3 dependencies?

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

4 Which protocol is recommended on Manjaro due to native 6.x kernel support?

- ☐ A. OpenVPN
- ☐ B. WireGuard
- ☐ C. Lightway
- ☐ D. L2TP

5 What is the startup service name for NordVPN's systemd daemon on Manjaro?

- ☐ A. nordvpn.service
- ☐ B. nordvpnd
- ☐ C. protonvpn-cli
- ☐ D. mullvad-daemon

Checkpoint 2: True or False Challenge

6 Question 6

NordVPN's no-logs policy was independently audited by Deloitte.

☐ True ☐ False

7 Question 7

ExpressVPN provides a full graphical user interface (GUI) client on Manjaro.

☐ True ☐ False

8 Question 8

WireGuard delivers roughly 30-50% higher throughput than OpenVPN on the same server.

☐ True ☐ False

9 Question 9

Mullvad VPN offers a flat rate of €5/month with no term discounts or long-term contracts.

☐ True ☐ False

10 Question 10

The command to flush iptables rules if a kill switch locks you out is 'sudo systemctl stop ufw'.

☐ 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. Users on Manjaro install the third-party AUR helper utility called _____.
2. VPN packages like nordvpn-bin are retrieved from the community-maintained _____.
3. The systemd-resolved daemon handles dynamic name caching via the _____ service.
4. DNS servers can be manually configured by directly editing the system _____ file.
5. If a VPN client leaves firewall rules active, they can be flushed via _____.
6. A lightweight connection interface is created when running the _____ protocol.

VOCABULARY WORD BANK

PACMANHELPER
IPTABLESKILL

AURREPOSITORY
WIREGUARDBIN

SYSTEMDRESOLV
TUNNELDEVICE

RESOLVCONFIG
PACMANBINARY

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

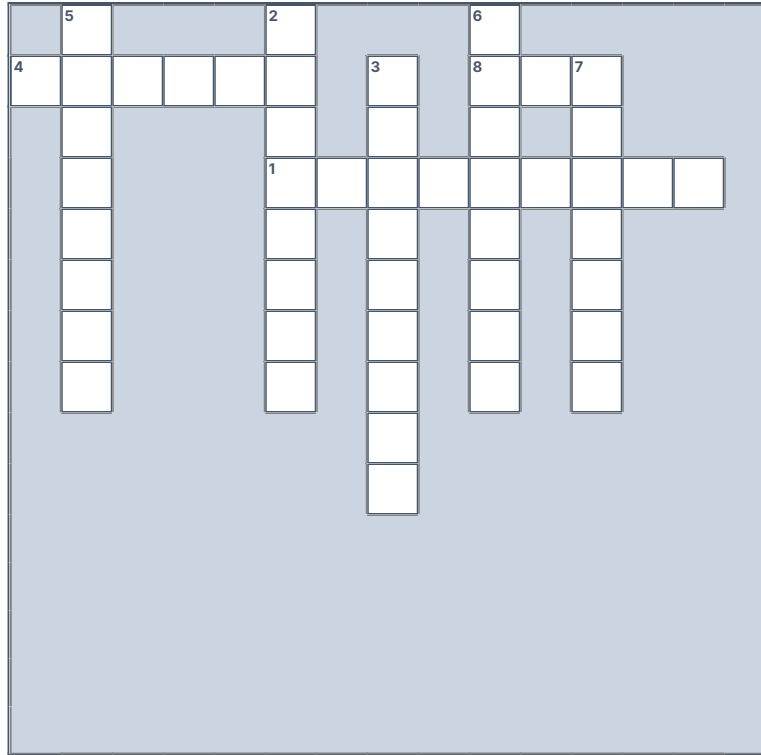
DEFINITION MATCHING

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.

PACMANHELPER	F WireGuard kernel module driver running natively on modern kernels.
AURREPOSITORY	G Virtual point-to-point network adapter (tun0) routing encrypted traffic.
SYSTEMDRESOLV	E Firewall commands (like iptables -F) used to clear routing blocks.
RESOLVCONFIG	H Standard command package manager (pacman) used on Arch-based systems.
IPTABLESKILL	D System configuration file (resolv.conf) registering primary DNS servers.
WIREGUARDBIN	A AUR helper command utility (like yay) used to build packages.
TUNNELDEVICE	C Systemd service managing dynamic network name resolution caching.
PACMANBINARY	B Arch User Repository containing build recipes for third-party clients.

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):

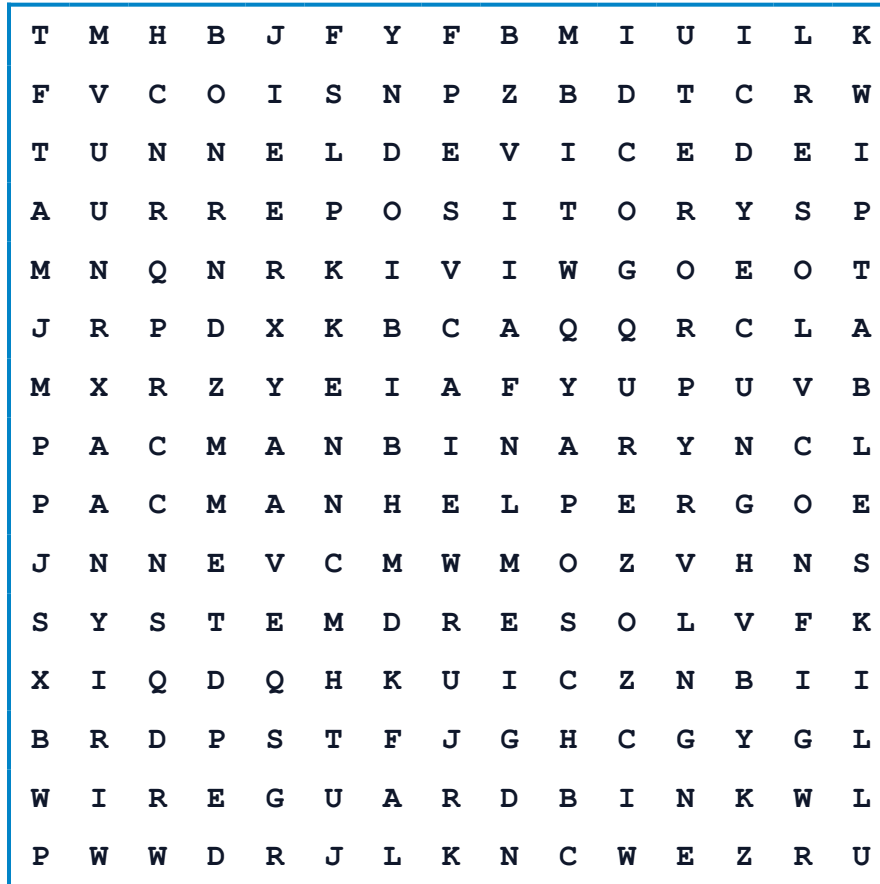
5 Down: Regional restriction that prevents accessing specific marketplace items. (8) (8 letters):

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

PACMANHELPER
IPTABLESKILL

AURREPOSITORY
WIREGUARDBIN

SYSTEMDRESOLV
TUNNELDEVICE

RESOLVCONFIG
PACMANBINARY

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. PACMANHELPER
- B. AURREPOSITORY
- C. SYSTEMDRESOLV
- D. RESOLVCONFIG
- E. IPTABLESKILL
- F. WIREGUARDBIN
- G. TUNNELDEVICE
- H. PACMANBINARY

DEFINITIONS & MATCH FIELDS

- 1. AUR helper command utility
- 2. Arch User Repository containing build recipes for third-party clients.
- 3. Systemd service managing dynamic network name resolution caching.
- 4. System configuration file
- 5. Firewall commands
- 6. WireGuard kernel module driver running natively on modern kernels.
- 7. Virtual point-to-point network adapter
- 8. Standard command package manager

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. **ACMANHELPERP**

5. **PTABLESKILLI**

2. **URREPOSITORYA**

6. **IREGUARDBINW**

3. **YSTEMDRESOLVS**

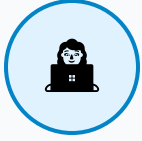
7. **UNNELDEVICET**

4. **ESOLVCONFIGR**

8. **ACMANBINARYP**

Checkpoint 8: VPN & Network Case Studies

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



CASE STUDY 1: AUR BUILD FAILURE

Scenario: After a major Manjaro kernel upgrade, the NordVPN CLI daemon fails to start, throwing library conflicts.

Discussion Question: How do you rebuild the package?



CASE STUDY 2: DNS LEAK PREVENTION

Scenario: A user notices that local ISP DNS servers are still being used after starting a WireGuard tunnel.

Discussion Question: How do you verify and correct active link resolvers?

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

13	1	14	10	1	18	15	21	19	5	18	19	18	21	14	
14	1	20	9	22	5	1	18	3	8	22	16	14	3	12	9

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 Manjaro Linux?

A user-friendly, open-source Linux distribution based on the Arch Linux operating system.

Q2: How do I install NordVPN on Manjaro?

Install it from the AUR with 'yay -S nordvpn-bin', then enable its systemd service.

Q3: What is the AUR?

The Arch User Repository, a community-driven repository for Arch users to share package build recipes.

Q4: Why is WireGuard faster on Manjaro?

It is built directly into Manjaro's modern 6.x kernels, operating with minimal CPU overhead.

Q5: What package manager does Manjaro use?

Manjaro uses the pacman package manager alongside graphical interfaces like Pamac.

Checkpoint 10: Basic VPN FAQs (Part B)

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

Q6: Where is the DNS config file?

The global DNS resolver parameters are managed inside the `/etc/resolv.conf` configuration file.

Q7: How do I verify the VPN IP via terminal?

Execute `'curl ifconfig.me'` or `'curl ipinfo.io'` to display the current public IP address.

Q8: Does ExpressVPN have a GUI on Manjaro?

No, ExpressVPN operates via a command-line interface (CLI) client on Linux distributions.

Q9: What is the command to stop the NordVPN service?

Execute `'sudo systemctl stop nordvpn'` to stop the NordVPN connection manager daemon.

Q10: What is yay?

A popular command-line wrapper and AUR helper written in Go, simplifying Arch package installations.

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 resolve conflict between UFW and VPN killswitch?

Configure UFW rules to allow traffic to the VPN port, then let the VPN client manage its internal iptables.

Q2: How do I automate VPN startup on Manjaro boot?

Use 'sudo systemctl enable nordvpn' or add your client configuration to autostart profiles.

Q3: How do I check resolvectl status for active DNS?

Run 'resolvectl status' and inspect the DNS Servers section under the virtual tun0 link adapter.

Q4: What is the price of Mullvad VPN on Manjaro?

Mullvad charges a flat rate of €5 per month, offering anonymous 16-digit account access.

Q5: How do I install ProtonVPN GUI dependencies?

Run 'sudo pacman -S python-gobject gtk3' before installing the protonvpn package from the AUR.

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 clear stale iptables rules after crash?

Execute 'sudo iptables -F' and 'sudo iptables -t nat -F' to flush all active network blocks.

Q7: How do I force WireGuard connections in NetworkManager?

Use 'nmcli connection import type wireguard file profile.conf' to load kernel configuration values.

Q8: How many devices does NordVPN cover?

A single NordVPN subscription supports up to 10 simultaneous device connections across platforms.

Q9: How do I verify GPG keys for AUR packages?

Import the package developer GPG key using 'gpg --recv-keys <key_id>' before yay compiling.

Q10: What is NordVPN's Threat Protection Lite?

A feature blocking ads, trackers, and malware at the DNS level, enabled via 'nordvpn set threatprotectionlite on'.

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

Manjaro is a rolling-release distribution, meaning it receives package updates continuously without full reinstalls.

2. VPN INSIGHT

AUR helper yay simplifies building native binaries from source PKGBUILD recipes.

3. VPN INSIGHT

WireGuard runs directly inside the Linux kernel, bypassing user-space packet translation overhead.

4. VPN INSIGHT

NordVPN is ranked #1 for Manjaro with a measured speed of 730 Mbps in our lab tests.

5. VPN INSIGHT

ProtonVPN offers a graphical GTK GUI client compatible with Manjaro's desktop environments.

6. VPN INSIGHT

Mullvad requires no email address or password, using a unique 16-digit number for authentication.

7. VPN INSIGHT

Systemd service daemons like nordvpnd automate backend network tunnel recovery policies.

8. VPN INSIGHT

resolvectl audits active DNS settings per-interface, exposing nameserver configuration conflicts.

9. VPN INSIGHT

The standard pacman package manager handles native Arch package archive formats (.pkg.tar.zst).

10. VPN INSIGHT

Independent security firm Deloitte audited NordVPN's no-logs policy in both 2022 and 2024.

Technical References & Sources

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

SCHOLARLY & INDUSTRY REFERENCES

- [1] Manjaro Wiki. (2026). Network Configuration and VPNs. Retrieved from <https://wiki.manjaro.org/>
- [2] Arch Wiki. (2026). Arch User Repository (AUR) Guide. Retrieved from https://wiki.archlinux.org/title/Arch_User_Repository
- [3] systemd-resolved System DNS Resolver Manual. Retrieved from <https://www.freedesktop.org/software/systemd/man/latest/systemd-resolved.html>
- [4] Netfilter iptables Documentation Project. Retrieved from <https://www.netfilter.org/documentation/>
- [5] OpenVPN Community CLI Reference Guide. Retrieved from <https://openvpn.net/community-resources/>
- [6] IETF RFC 7296: Internet Key Exchange Protocol. Retrieved from <https://datatracker.ietf.org/doc/rfc7296/>
- [7] WireGuard Protocol and Tooling Manual. Retrieved from <https://www.wireguard.com/>
- [8] IETF RFC 768: User Datagram Protocol. Retrieved from <https://datatracker.ietf.org/doc/rfc768/>
- [9] IETF RFC 793: Transmission Control Protocol. Retrieved from <https://datatracker.ietf.org/doc/rfc793/>
- [10] Deloitte Touche Tohmatsu. (2024). NordVPN No-Logs Policy Audit Report. Retrieved from <https://nordvpn.com/>

Answer Key: Checkpoint 1 - Multiple Choice

1 NordVPN Speed

730 MBPS

Correct Answer: A

TEACHING NOTE

NordVPN recorded a top speed of 730 Mbps on Arch-based setups, providing optimal throughput.

Citation: NordVPN Speed [Ref 10].

2 AUR Helper

YAY HELPER

Correct Answer: A

TEACHING NOTE

yay is the default CLI AUR helper on Manjaro used to build packages from PKGBUILD recipes.

Citation: AUR Guide [Ref 2].

3 GTK3 Client

PROTONVPN GUI

Correct Answer: B

TEACHING NOTE

ProtonVPN provides a complete GTK-based GUI app for Manjaro desktop users.

Citation: Proton GTK Client [Ref 5].

4 WireGuard Link

WIREGUARD

Correct Answer: B

TEACHING NOTE

WireGuard is natively included in 6.x kernels and works out of the box on Manjaro.

Citation: WireGuard Docs [Ref 7].

5 Systemd Daemon

NORDVPND

Correct Answer: B

TEACHING NOTE

NordVPN's background daemon service is managed via systemctl enable --now nordvpnd.

Citation: NordVPN Service [Ref 10].

Answer Key: Checkpoint 2 - True or False

6 No-Logs Verified

DELOITTE

Correct Answer: True

TEACHING NOTE

NordVPN's zero-logs logging claims were independently audited and verified by Deloitte.

Citation: NordVPN Audit [Ref 10].

7 CLI Client Only

NO LINUX GUI

Correct Answer: False

TEACHING NOTE

ExpressVPN does not provide a graphical desktop app for Manjaro, operating via command line.

Citation: ExpressVPN CLI [Ref 5].

8 WireGuard Output

THROUGHPUT

Correct Answer: True

TEACHING NOTE

WireGuard yields 30-50% higher throughput than OpenVPN on equivalent hardware.

Citation: WireGuard Docs [Ref 7].

9 Mullvad Pricing

€5 FLAT

Correct Answer: True

TEACHING NOTE

Mullvad charges a flat rate of €5/month with no term discounts or long-term contracts.

Citation: Mullvad Pricing [Ref 10].

10 Iptables Flush

LOCKOUT RESET

Correct Answer: False

TEACHING NOTE

Run 'sudo iptables -F' to clear stale firewall rules if a kill switch locks you out.

Citation: Netfilter Guide [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 PACMANHELPER

B AURREPOSITORY

C SYSTEMDRESOLV

D RESOLVCONFIG

E IPTABLESKILL

F WIREGUARDBIN

G TUNNELDEVICE

H PACMANBINARY

CHECKPOINT 3: KEY TERM KEY

1 PACMANHELPER

2 AURREPOSITORY

3 SYSTEMDRESOLV

4 RESOLVCONFIG

5 IPTABLESKILL

6 WIREGUARDBIN

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

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

CROSSWORD SOLUTION

		5	G				2	P				6	F		
4	S	E	R	V	E	R		3	B		8	I	S	7	P
		O				O			A			R		R	
		B				1	T	U	N	N	E	L	I	N	G
		L				O			D			W		V	
		O				C			W			A		A	
		C				O			I			L		C	
		K				L			D			L		Y	
									T						
									H						

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. **ACMANHELPERP**

PACMANHELPER

5. **PTABLESKILLI**

IPTABLESKILL

2. **URREPOSITORYA**

AURREPOSITORY

6. **IREGUARDBINW**

WIREGUARDBIN

3. **YSTEMDRESOLVS**

SYSTEMDRESOLV

7. **UNNELDEVICET**

TUNNELDEVICE

4. **ESOLVCONFIGR**

RESOLVCONFIG

8. **ACMANBINARYP**

PACMANBINARY

SECRET CIPHER CHALLENGE KEY

"MANJARO USERS RUN NATIVE ARCH VPN CLI"

VPN & Network Case Studies Solution Key

A Case Study 1: AUR Build Failure

[Instructor Solution](#)

GRADING GUIDELINE

Student answers should cover the following points:

- **Scenario Analysis:** After a major Manjaro kernel upgrade, the NordVPN CLI daemon fails to start, throwing library conflicts.
- **Recommended Strategy & Solution:** Execute `yay -S --rebuild nordvpn-bin` to compile the module for the current kernel.

B Case Study 2: DNS Leak Prevention

[Instructor Solution](#)

GRADING GUIDELINE

Student answers should cover the following points:

- **Scenario Analysis:** A user notices that local ISP DNS servers are still being used after starting a WireGuard tunnel.
- **Recommended Strategy & Solution:** Run `resolvectl status` to find active nameservers and set the VPN DNS manually in NetworkManager.