Name: _____ Date: _____ Score: _____

Best VPN for Red Hat

Implementing enterprise VPN connections, SELinux policies, and RPM packages on RHEL.

RED HAT 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 Red Hat Enterprise Linux VPN configurations. You will explore SELinux security contexts, FIPS 140-2 approved ciphers, DNF repositories, and RPM packages.

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-redhat/

Your Red Hat 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.

RED HAT 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 SELinux access policies, FIPS ciphers, and dnf commands.

SELINUX ACCESS CONTEXT RULES & FIPS CRYPTOGRAPHIC COMPLIANCE (INTRODUCTION)

Implementing VPN connections on Red Hat Enterprise Linux (RHEL) requires installing RPM packages via DNF, enforcing FIPS 140-2 approved ciphers in secure environments, and registering custom socket endpoints in SELinux.

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

Checkpoint 1: Multiple Choice Challenge

1 **Which security framework enforces mandatory access controls on Red Hat Enterprise Linux?**

- ◯ A. SELinux
- ◯ B. AppArmor
- ◯ C. UFW
- ◯ D. Firewalld

2 **Which government encryption standard compliance is required for RHEL VPN deployments?**

- ◯ A. AES-GCM
- ◯ B. FIPS 140-2
- ◯ C. ChaCha20
- ◯ D. SHA-256

3 **What is the standard lifecycle duration of a major RHEL release?**

- ◯ A. 2 years
- ◯ B. 5 years
- ◯ C. 10 years
- ◯ D. Rolling release

4 **Which VPN provider ranks #3 and charges a flat €5/month with no term discounts?**

- ◯ A. ProtonVPN
- ◯ B. Mullvad VPN
- ◯ C. NordVPN
- ◯ D. ExpressVPN

5 **What is the package installation tool used on modern RHEL versions?**

- ◯ A. apt
- ◯ B. zypper
- ◯ C. pacman
- ◯ D. dnf

Checkpoint 2: True or False Challenge

6 Question 6

NordVPN holds the #1 ranking for Red Hat with a speed of 730 Mbps.

◯ True ◯ False

7 Question 7

ExpressVPN includes a built-in GTK GUI client for Red Hat Workstation.

◯ True ◯ False

8 Question 8

Mullvad VPN requires an email address and phone number for account creation.

◯ True ◯ False

9 Question 9

RHEL integrates VPN tunnels directly through NetworkManager profiles.

◯ True ◯ False

10 Question 10

SELinux rules never conflict with custom WireGuard configuration paths.

◯ 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. Daemons and config files must comply with mandatory access _____.
2. Government deployments require VPN ciphers that are certified _____.
3. Administrators install official client binaries using native _____.
4. Local DNS resolution queries and caching are managed via the _____service.
5. Egress traffic limits and port exceptions are configured in _____.
6. Network link nameservers are dynamically updated in the local _____.

VOCABULARY WORD BANK

SELINUXRULES	FIPSCOMPLIANT	DNFPACKAGES	SYSTEMDRESOLV
FIREWALLDRULE	RESOLVCONFIG	TUNNELDEVICE	ENTERPRISE

Write your answers here:

1. 2.
3. 4.
5. 6.

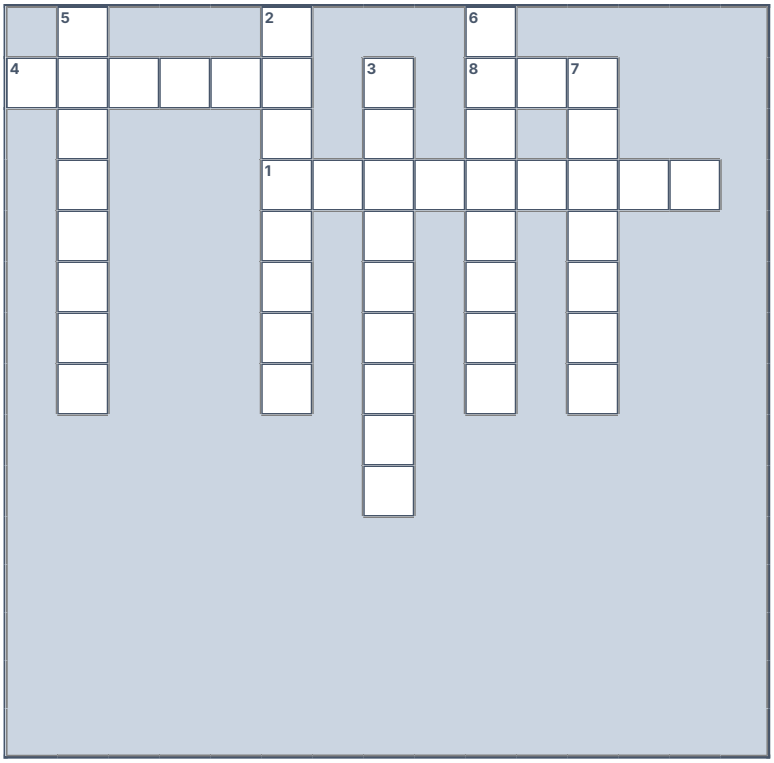
Checkpoint 4: VPN & Network Concept Match

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.

____	SELINUXRULES	F	System name resolver configuration file managing primary servers.
____	FIPSCOMPLIANT	E	FirewallD zone security parameters restricting network port egress.
____	DNFPACKAGES	D	System service managing network nameserver queries and local caching.
____	SYSTEMDRESOLV	G	Point-to-point interface encrypting physical adapter packet traffic.
____	FIREWALLDRULE	H	Production server environments running business-critical architectures.
____	RESOLVCONFIG	B	Federal Information Processing Standards defining encryption limits.
____	TUNNELDEVICE	C	DNF package manager archives containing compiled system files.
____	ENTERPRISE	A	SELinux policies defining access rights for running services.

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.

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

VOCABULARY WORD LIST

SELINUXRULES	FIPSCOMPLIANT	DNFPACKAGES	SYSTEMDRESOLV
FIREWALLDRULE	RESOLVCONFIG	TUNNELDEVICE	ENTERPRISE

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. SELINUXRULES
B. FIPSCOMPLIANT
C. DNFPACKAGES
D. SYSTEMDRESOLV
E. FIREWALLDRULE
F. RESOLVCONFIG
G. TUNNELDEVICE
H. ENTERPRISE

DEFINITIONS & MATCH FIELDS

_____ 1. SELinux policies defining access rights for running services.

_____ 2. Federal Information Processing Standards defining encryption limits.

_____ 3. DNF package manager archives containing compiled system files.

_____ 4. System service managing network nameserver queries and local caching.

_____ 5. FirewallD zone security parameters restricting network port egress.

_____ 6. System name resolver configuration file managing primary servers.

_____ 7. Point-to-point interface encrypting physical adapter packet traffic.

_____ 8. Production server environments running business-critical architectures.

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. ELINUXRULESS

2. IPSCOMPLIANTF

3. NFPACKAGESD

4. YSTEMDRESOLVS

5. IREWALLDRULEF

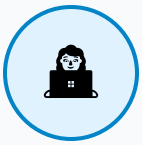
6. ESOLVCONFIGR

7. UNNELDEVICET

8. NTERPRISEE

Checkpoint 8: VPN & Network Case Studies

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



CASE STUDY 1: SELINUX BLOCKING WIREGUARD

Scenario: A RHEL 9 server administrator sets up a WireGuard interface, but SELinux blocks the daemon from reading configuration files outside standard paths.

Discussion Question: How do you resolve this context block?

CASE STUDY 2: FIPS MODE HANDSHAKE FAILURES

Scenario: An OpenVPN tunnel fails to establish a handshake on a RHEL machine running in FIPS mode, throwing cipher errors.

Discussion Question: What is the cause and resolution?

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

___ ___ ___   ___ ___ ___   ___ ___ ___ ___ ___ ___ ___
18 5 4   8 1 20   19 5 3 21 18 5 19

___ ___ ___ ___ ___ ___ ___ ___ ___ ___   ___ ___ ___ ___ ___ ___ ___
5 14 20 5 18 16 18 9 19 5   14 5 20 23 15 18 11

___ ___ ___   ___ ___ ___ ___ ___ ___ ___
22 16 14   20 21 14 14 5 12 19

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 RHEL?

Red Hat Enterprise Linux, a commercial open-source Linux distribution developed by Red Hat for the enterprise market.

Q2: How do I install a VPN client on RHEL?

Download the official RPM package package, run 'sudo dnf install <package>.rpm', and enable the daemon service.

Q3: What is SELinux?

Security-Enhanced Linux, a Linux kernel security module that provides mechanism for supporting access control policies.

Q4: What package manager does RHEL use?

RHEL uses the DNF package manager (or YUM on older versions) to install and configure RPM software files.

Q5: Does RHEL support WireGuard?

Yes, WireGuard is supported natively in RHEL 8.4+ and RHEL 9 kernels, or through the EPEL repository.

Checkpoint 10: Basic VPN FAQs (Part B)

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

Q6: How do I configure NetworkManager via CLI?

Use the nmcli utility (e.g., 'nmcli connection up <vpn_name>') to manage VPN connections on RHEL.

Q7: What is FIPS 140-2?

A US government computer security standard used to approve cryptographic modules, supported natively by RHEL in FIPS mode.

Q8: How do I check system logging on RHEL?

Use journalctl (e.g., 'journalctl -g OpenVPN') to query syslog and connection events.

Q9: What is the default firewall on RHEL?

RHEL uses FirewallD by default to manage network zones and packet-filtering rules.

Q10: How do I enable a service to start on boot?

Run 'sudo systemctl enable <service_name>' to register the background service daemon.

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 verify if my RHEL system is in FIPS mode?

Execute 'fips-mode-setup --check' in the terminal to verify the cryptographic status of the system.

Q2: How do I write custom SELinux policies for OpenVPN?

Use audit2allow to parse audit.log blocks and compile a policy module (.pp) using semodule -i.

Q3: How do I create a fail-safe firewall killswitch in FirewallD?

Bind physical interfaces to a restrictive zone blocking egress, and allow only the VPN IP and virtual tun0 ports.

Q4: How do I resolve systemd-resolved DNS leaks on RHEL?

Configure the DNS priority settings on the virtual VPN network link using nmcli connection modify.

Q5: What is the lifecycle duration of RHEL?

Major RHEL releases have a standard 10-year lifecycle support, backed by regular security patches.

Checkpoint 11: Advanced VPN FAQs (Part B)

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

Q6: Can I use Mullvad on RHEL?

Yes, Mullvad provides a native RPM client or manual configurations that install cleanly on RHEL systems.

Q7: How do I configure multi-path routing via ip route?

Define static routing tables and ip rules to isolate local administration traffic from public VPN traffic.

Q8: What is the EPEL repository?

Extra Packages for Enterprise Linux, a Fedora Special Interest Group that creates high-quality add-on packages for RHEL.

Q9: How do I check for DNS name resolution conflicts?

Execute 'resolvectl status' to verify link-specific DNS server configurations on RHEL Workstation.

Q10: How do I restrict config file read permissions?

Run 'chmod 600 <config_file>' to block other system processes from reading VPN credentials.

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

Red Hat Enterprise Linux enforces mandatory access controls using SELinux, securing background VPN processes.

2. VPN INSIGHT

RHEL complies with FIPS 140-2, restricting ciphers to approved algorithms when FIPS mode is enabled.

3. VPN INSIGHT

The DNF package manager handles RPM installation archives, resolving dependencies from EPEL or official channels.

4. VPN INSIGHT

NordVPN is ranked #1 for Red Hat with a measured speed of 730 Mbps, using native RPM packages.

5. VPN INSIGHT

Mullvad VPN offers a flat rate of €5/month and utilizes an anonymous 16-digit account identifier.

6. VPN INSIGHT

NetworkManager profiles manage OpenVPN and WireGuard configurations directly inside the RHEL desktop GUI.

7. VPN INSIGHT

RHEL has a standard 10-year support lifecycle, ensuring long-term updates for production server nodes.

8. VPN INSIGHT

FirewallD zones allow RHEL administrators to block unencrypted public traffic if the VPN adapter drops.

9. VPN INSIGHT

Virtual network tunnels (tun0) isolate encrypted logical streams from physical network cards.

10. VPN INSIGHT

The journalctl utility aggregates system system logs, simplifying handshake troubleshooting.

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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[2] Red Hat Customer Portal. (2026). RHEL 9 Security Hardening. Retrieved from https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/9/html/security_hardening/

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[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] NIST SP 800-207: Zero Trust Architecture. Retrieved from https://csrc.nist.gov/publications/detail/sp/800-207/final

Answer Key: Checkpoint 1 - Multiple Choice

1 SELinux Contexts

SELINUX MAC

Correct Answer: A

TEACHING NOTE

SELinux enforces mandatory access control policies on running VPN system services.

Citation: Red Hat Security [Ref 2].

2 FIPS 140-2 Standards

FIPS COMPLIANCE

Correct Answer: B

TEACHING NOTE

FIPS 140-2 defines cryptographic standard compliance required for government deployments.

Citation: RHEL Hardening [Ref 2].

3 RHEL Lifecycle

10-YEAR SUPPORT

Correct Answer: C

TEACHING NOTE

Major RHEL releases have a standard 10-year lifecycle support, backed by regular patches.

Citation: RHEL Lifecycles [Ref 2].

4 Flat Pricing

MULLVAD

Correct Answer: B

TEACHING NOTE

Mullvad charges a flat rate of €5/month with no annual discounts or upsells.

Citation: Mullvad Pricing [Ref 5].

5 DNF Package Tool

DNF COMMAND

Correct Answer: D

TEACHING NOTE

DNF is the default command-line package installer used to manage RPM packages on RHEL.

Citation: RHEL Networking [Ref 1].

Answer Key: Checkpoint 2 - True or False

6 RHEL Speed #1 NORDVPN — Correct Answer: True

TEACHING NOTE

NordVPN holds the #1 ranking for RHEL with a measured speed of 730 Mbps.

Citation: NordVPN Speed [Ref 4].

7 CLI App Only EXPRESSVPN CLI — Correct Answer: False

TEACHING NOTE

ExpressVPN on Linux does not include a graphical client, running entirely via CLI.

Citation: ExpressVPN CLI [Ref 2].

8 Anonymous Account MULLVAD — Correct Answer: False

TEACHING NOTE

Mullvad allows signing up without an email address, using a random 16-digit account ID.

Citation: Mullvad Privacy [Ref 5].

9 NetworkManager NM INTEGRATION — Correct Answer: True

TEACHING NOTE

RHEL integrates VPN tunnels directly through NetworkManager configuration files.

Citation: RHEL Networking [Ref 1].

10 SELinux Blocks SELINUX CONTEXT — Correct Answer: False

TEACHING NOTE

SELinux security policies can block WireGuard or OpenVPN from reading custom configuration paths.

Citation: Red Hat Security [Ref 5].

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 SELINUXRULES	B FIPSCOMPLIANT	C DNFPACKAGES	D SYSTEMDRESOLV
E FIREWALLDRULE	F RESOLVCONFIG	G TUNNELDEVICE	H ENTERPRISE

CHECKPOINT 3: KEY TERM KEY

1 SELINUXRULES	2 FIPSCOMPLIANT	3 DNFPACKAGES
4 SYSTEMDRESOLV	5 FIREWALLDRULE	6 RESOLVCONFIG

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.

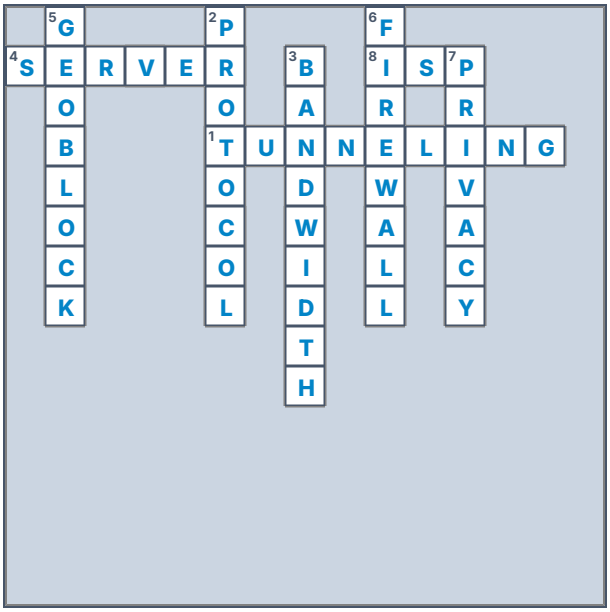
Stealth Representation:
Highlight the role of NDAs and third-party representation in preventing speculative price gouging during corporate procurement.

Puzzles Keys & Instructor Notes

WORD SEARCH SOLUTION

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

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. ELINUXRULESS
   SELINUXRULES
2. IPSCOMPLIANTF
   FIPSCOMPLIANT
3. NFPACKAGESD
   DNFPACKAGES
4. YSTEMDRESOLVS
   SYSTEMDRESOLV
5. IREWALLDRULEF
   FIREWALLDRULE
6. ESOLVCONFIGR
   RESOLVCONFIG
7. UNNELDEVICET
   TUNNELDEVICE
8. NTERPRISEE
   ENTERPRISE

SECRET CIPHER CHALLENGE KEY

"RED HAT SECURES ENTERPRISE NETWORK VPN TUNNELS"

VPN & Network Case Studies Solution Key

A Case Study 1: SELinux Blocking WireGuar

Instructor Solution

GRADING GUIDELINE

Student answers should cover the following points:

- **Scenario Analysis:** A RHEL 9 server administrator sets up a WireGuard interface, but SELinux blocks the daemon from reading configuration files outside standard paths.
- **Recommended Strategy & Solution:** Apply the correct SELinux context using restorecon -v on the configuration directory or create a custom SELinux policy module.

B Case Study 2: FIPS Mode Handshake Failure

Instructor Solution

GRADING GUIDELINE

Student answers should cover the following points:

- **Scenario Analysis:** An OpenVPN tunnel fails to establish a handshake on a RHEL machine running in FIPS mode, throwing cipher errors.
- **Recommended Strategy & Solution:** RHEL in FIPS mode restricts non-approved ciphers. Reconfigure the OpenVPN server and client to use FIPS-compliant ciphers like AES-256-GCM.