Number: N10-009
Passing Score: 800
Time Limit: 120
File Version: 4.0

Exam Code: N10-009

Exam Name: CompTIA Network+ Certification

Exam A

QUESTION 1
A network administrator for a small office is adding a passive IDS to its network switch for the purpose of inspecting network traffic. Which of the following should the administrator use?

A. SNMP trap
B. Port mirroring
C. Syslog collection
D. API integration

Correct Answer: B
Section:
Explanation:
Port mirroring, also known as SPAN (Switched Port Analyzer), is used to send a copy of network packets seen on one switch port (or an entire VLAN) to another port where the IDS is connected. This allows the IDS to passively inspect network traffic without interfering with the actual traffic flow. Port mirroring is an essential feature for implementing IDS in a network for traffic analysis and security monitoring.
Reference: CompTIA Network+ study materials.

QUESTION 2
An organization has a security requirement that all network connections can be traced back to a user. A network administrator needs to identify a solution to implement on the wireless network. Which of the following is the best solution?

A. Implementing enterprise authentication
B. Requiring the use of PSKs
C. Configuring a captive portal for users
D. Enforcing wired equivalent protection

Correct Answer: A
Section:
Explanation:
Enterprise authentication (such as WPA2-Enterprise) utilizes unique credentials for each user, typically integrating with an authentication server like RADIUS. This allows for tracking and logging user activity, ensuring that all connections can be traced back to individual users. PSKs (Pre-Shared Keys) are shared among users and do not provide individual accountability. Captive portals can identify users but are less secure than enterprise authentication, and Wired Equivalent Privacy (WEP) is outdated and not recommended for security purposes.
CompTIA Network+ materials highlight enterprise authentication methods as the preferred solution for secure and accountable wireless network access.

QUESTION 3
Which of the following panels would be best to facilitate a central termination point for all network cables on the floor of a company building?

A. Patch
B. UPS
C. MDF
D. Rack

Correct Answer: A
Section:
Explanation:

A patch panel is the best choice to facilitate a central termination point for all network cables on the floor of a company building. Patch panels are used to manage and organize multiple network cables, providing a central point where all cables converge. This setup allows for easy management, troubleshooting, and reconfiguration of network connections. The other options, such as UPS (Uninterruptible Power Supply), MDF (Main Distribution Frame), and rack, serve different purposes and are not specifically designed for the central termination of network cables.
Reference: CompTIA Network+ Certification Exam Objectives - Network Installation section.

QUESTION 4
A customer needs six usable IP addresses. Which of the following best meets this requirement?

A. 255.255.255.128
B. 255.255.255.192
C. 255.255.255.224
D. 255.255.255.240

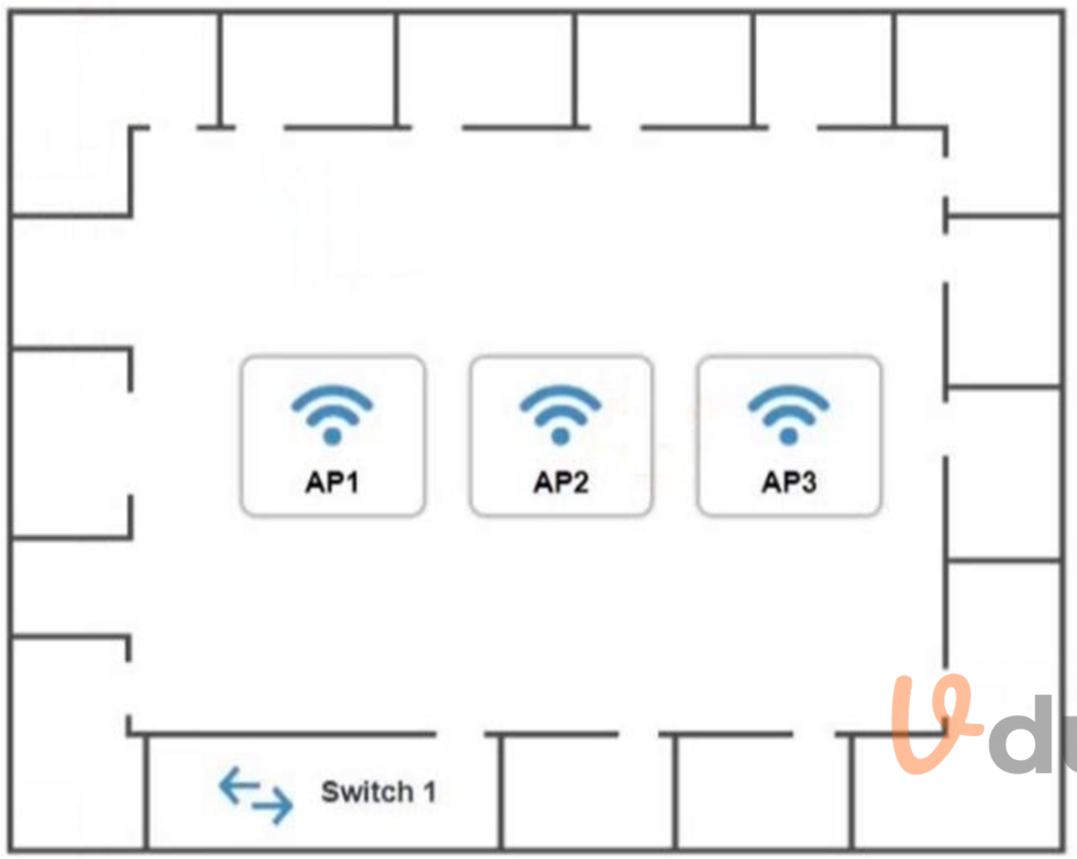
Correct Answer: D
Section:
Explanation:
To meet the requirement of six usable IP addresses, the subnet mask 255.255.255.240 (also represented as /28) is the best fit. A /28 subnet provides 16 total IP addresses, out of which 14 are usable (the first address is the network address, and the last address is the broadcast address). This meets and exceeds the requirement for six usable IP addresses, ensuring there are enough addresses for future expansion if needed. The other options provide either too few or too many addresses for this specific requirement.
Reference: CompTIA Network+ Certification Exam Objectives - IP Addressing section.

QUESTION 5
A network administrator is configuring a new switch and wants to ensure that only assigned devices can connect to the switch. Which of the following should the administrator do?

A. Configure ACLs.
B. Implement a captive portal.
C. Enable port security.
D. Disable unnecessary services.

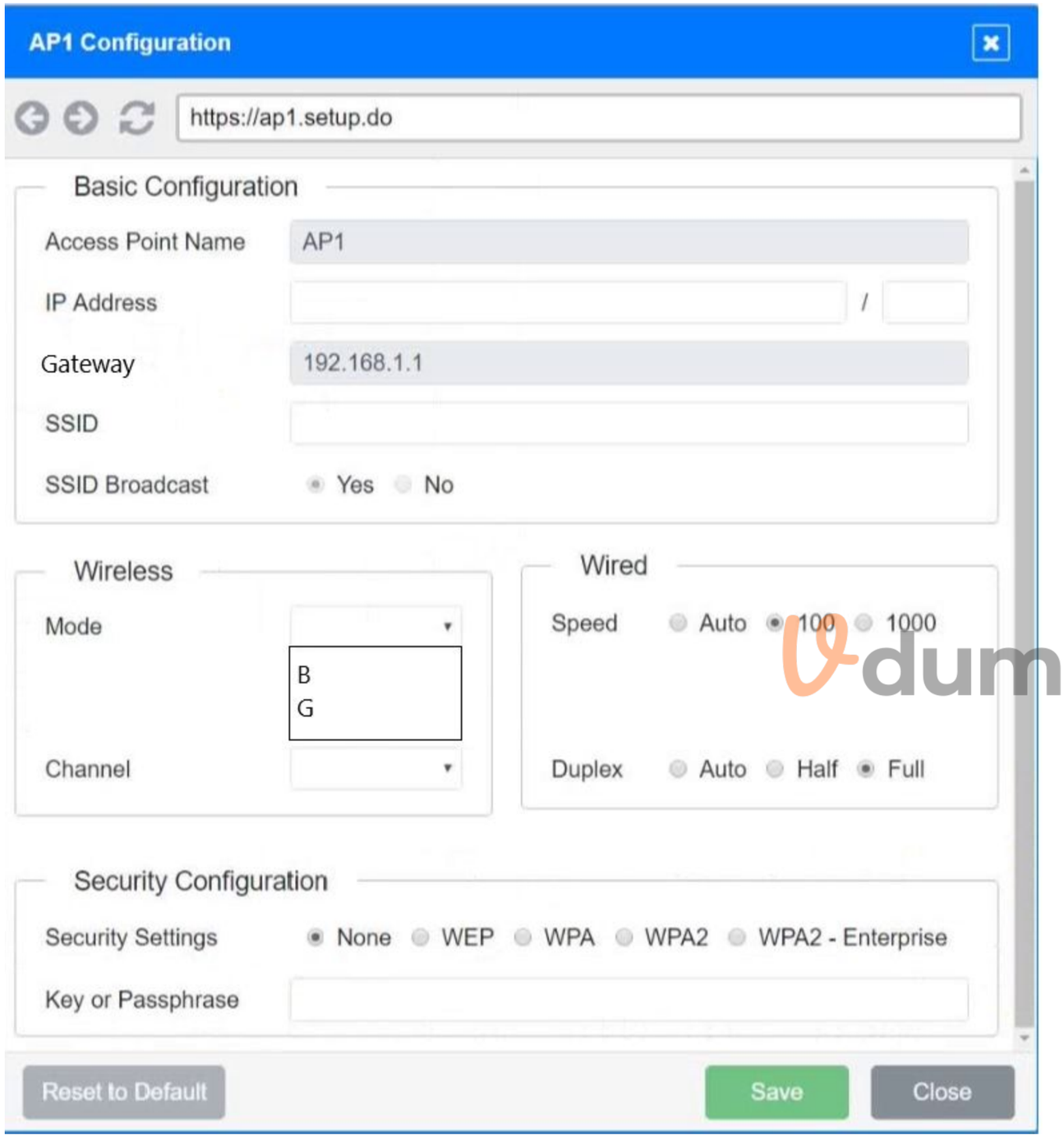
Correct Answer: C
Section:
Explanation:
To ensure that only assigned devices can connect to a switch, the network administrator should enable port security. Port security restricts port access based on MAC addresses, allowing only pre-configured devices to connect to the network. This helps prevent unauthorized devices from gaining access to the network. Other options like configuring ACLs, implementing a captive portal, or disabling unnecessary services serve different security purposes and do not directly restrict physical port access based on device identity.
Reference: CompTIA Network+ Certification Exam Objectives - Network Security section.

QUESTION 6
SIMULATION
You have been tasked with setting up a wireless network in an office. The network will consist of 3 Access Points and a single switch. The network must meet the following parameters:
The SSIDs need to be configured as CorpNet with a key of S3cr3t!
The wireless signals should not interfere with each other
The subnet the Access Points and switch are on should only support 30 devices maximum
The Access Points should be configured to only support TKIP clients at a maximum speed
INSTRUCTONS
Click on the wireless devices and review their information and adjust the settings of the access points to meet the given requirements.
If at any time you would like to bring back the initial state of the simulation, please click the Reset All button.



192.168.1.2
Speed: Auto
Duplex: Auto

Vdumps


AP1 Configuration
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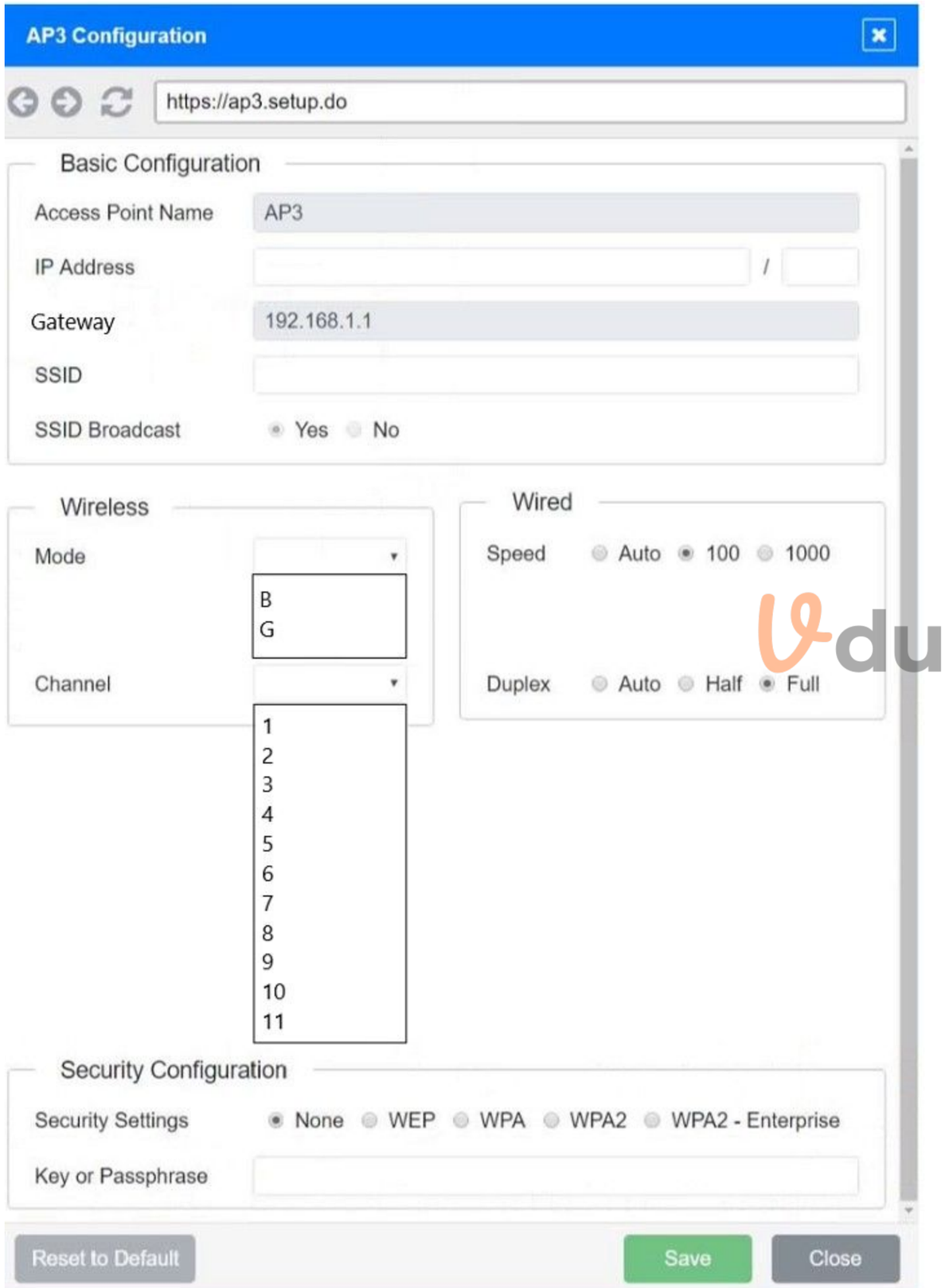
Basic Configuration
Access Point Name
AP1
IP Address
/
Gateway
192.168.1.1
SSID
SSID Broadcast
Yes
No
Wireless
Mode
B
G
Channel
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
Security Configuration
Security Settings
None
WEP
WPA
WPA2
WPA2 - Enterprise
Key or Passphrase
Reset to Default
Save
Close

Vdumps

AP2 Configuration
https://ap2.setup.do
Basic Configuration
Access Point Name
AP2
IP Address
/
Gateway
192.168.1.1
SSID
SSID Broadcast
Yes
No
Wireless
Mode
B
G
Channel
1
2
3
4
5
6
7
8
9
10
11
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
Security Configuration
Security Settings
None
WEP
WPA
WPA2
WPA2 - Enterprise
Key or Passphrase
Reset to Default
Save
Close

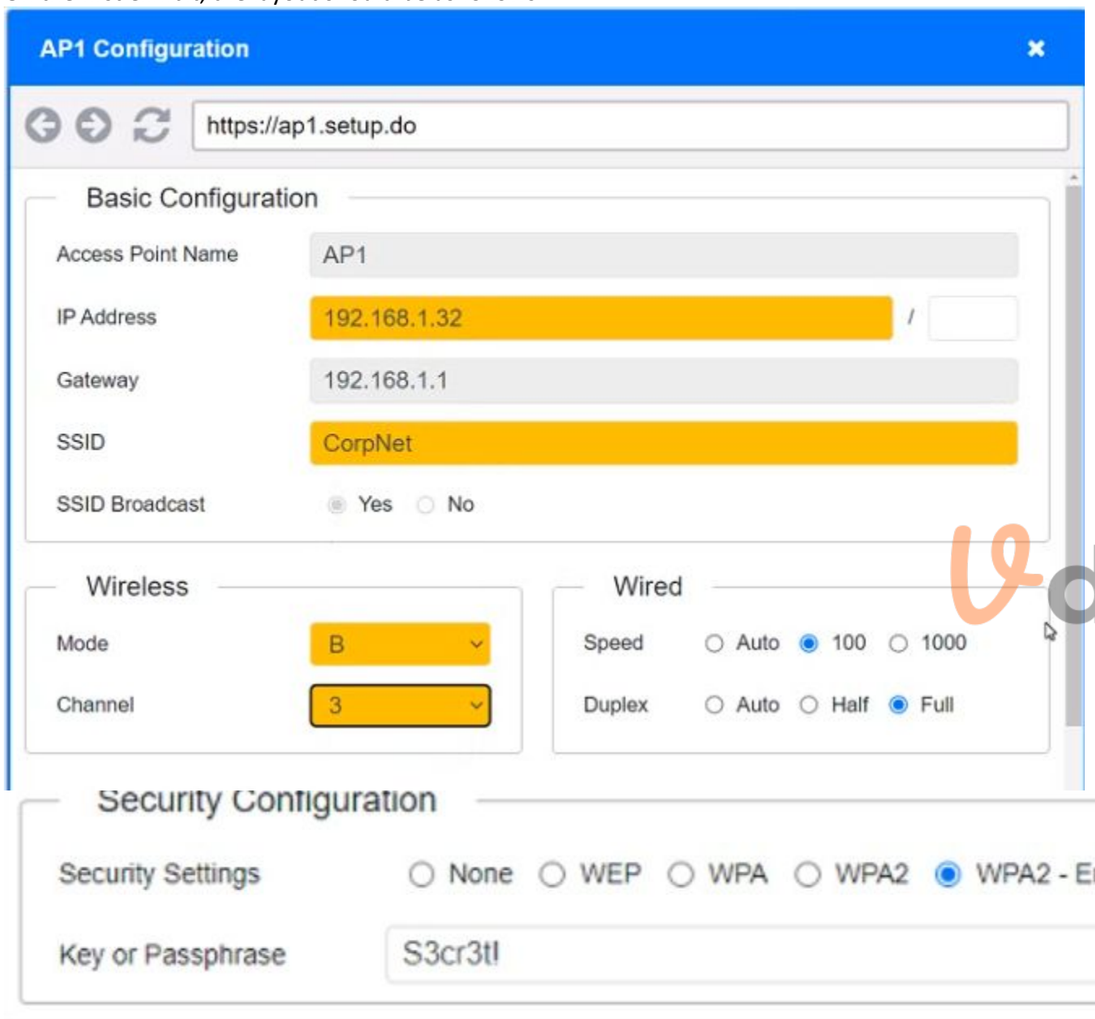
vdumps


AP3 Configuration
https://ap3.setup.do
Basic Configuration
Access Point Name
AP3
IP Address
/
Gateway
192.168.1.1
SSID
SSID Broadcast
Yes
No
Wireless
Mode
B
G
Channel
1
2
3
4
5
6
7
8
9
10
11
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
Security Configuration
Security Settings
None
WEP
WPA
WPA2
WPA2 - Enterprise
Key or Passphrase
Reset to Default
Save
Close

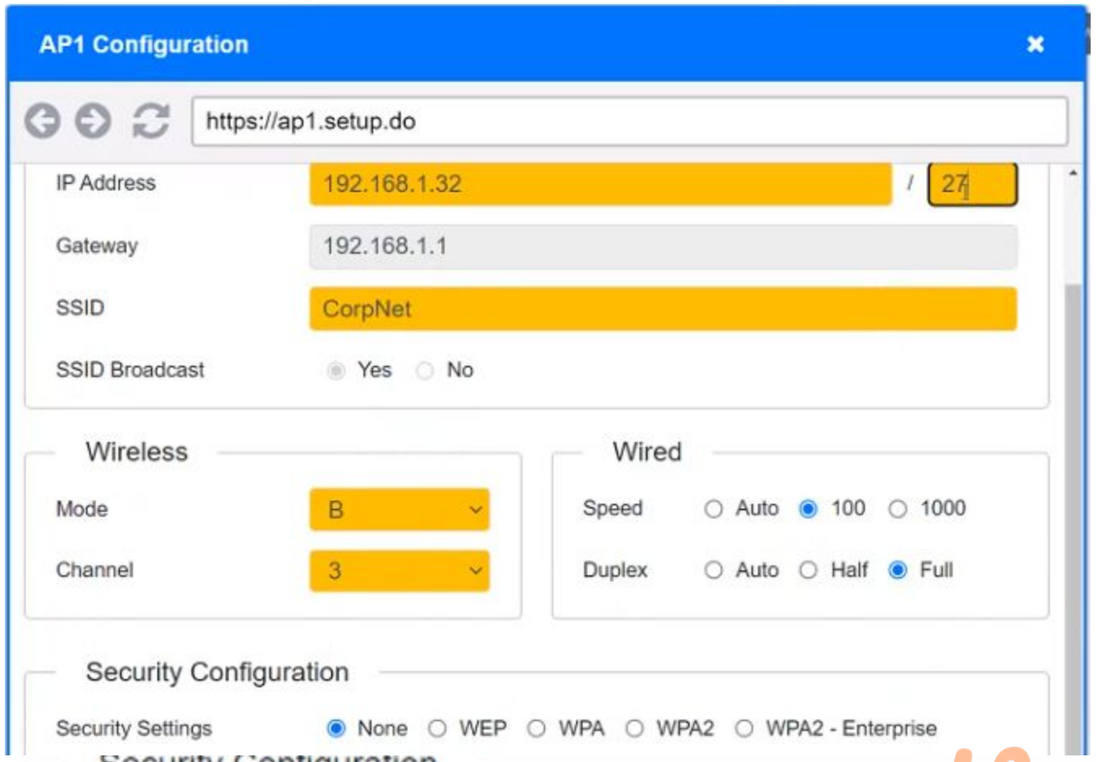
vdumps

A. See explanation below

Correct Answer: A
Section:
Explanation:
On the first exhibit, the layout should be as follows



Vdumps


AP1 Configuration
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IP Address
192.168.1.32
/
27
Gateway
192.168.1.1
SSID
CorpNet
SSID Broadcast
Yes
No
Wireless
Mode
B
Channel
3
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
Security Configuration
Security Settings
None
WEP
WPA
WPA2
WPA2 - Enterprise

Security Configuration
Security Settings
None
WEP
WPA
WPA2
WPA2 - Enterprise
Key or Passphrase
S3cr3tI

Vdumps

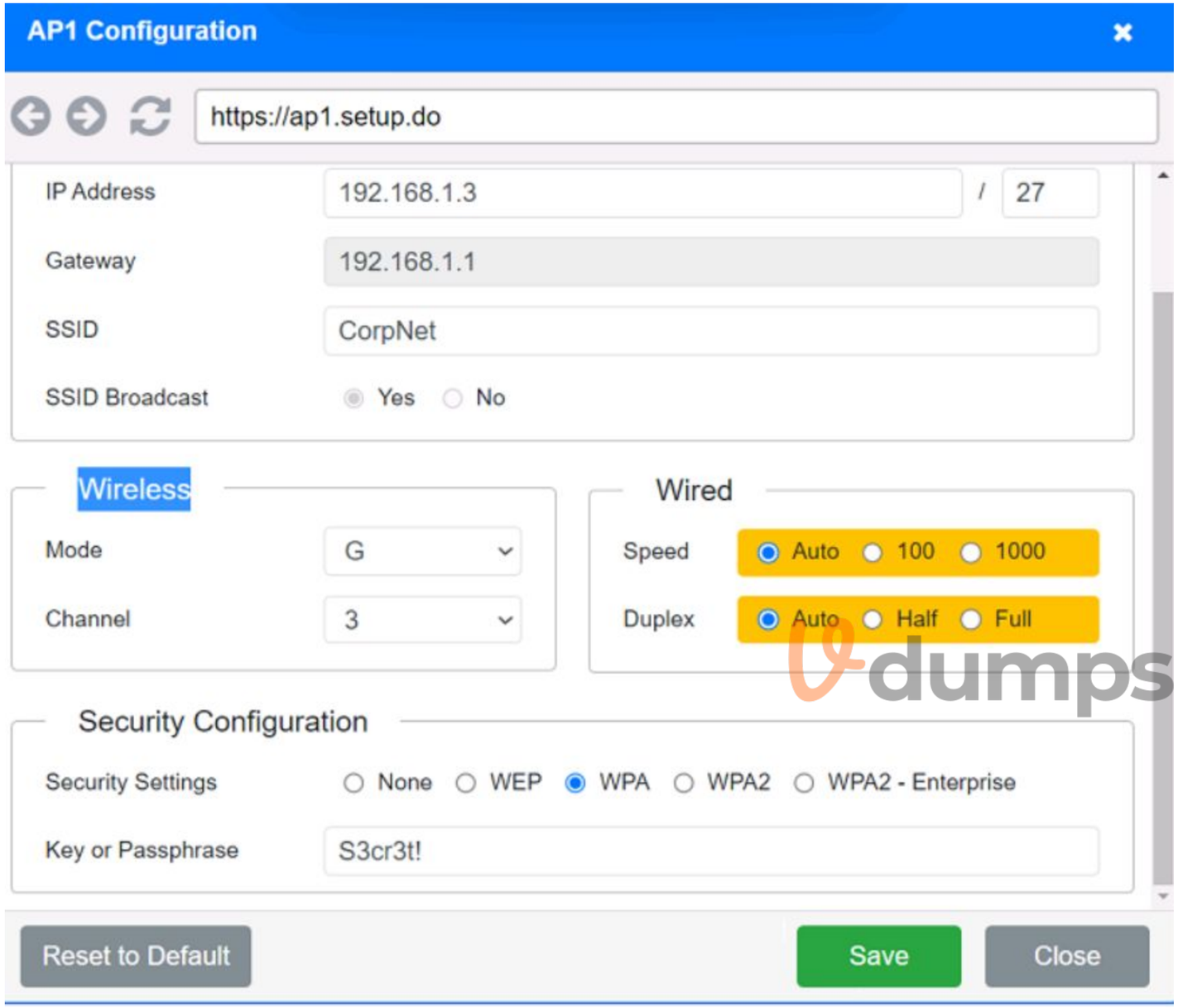
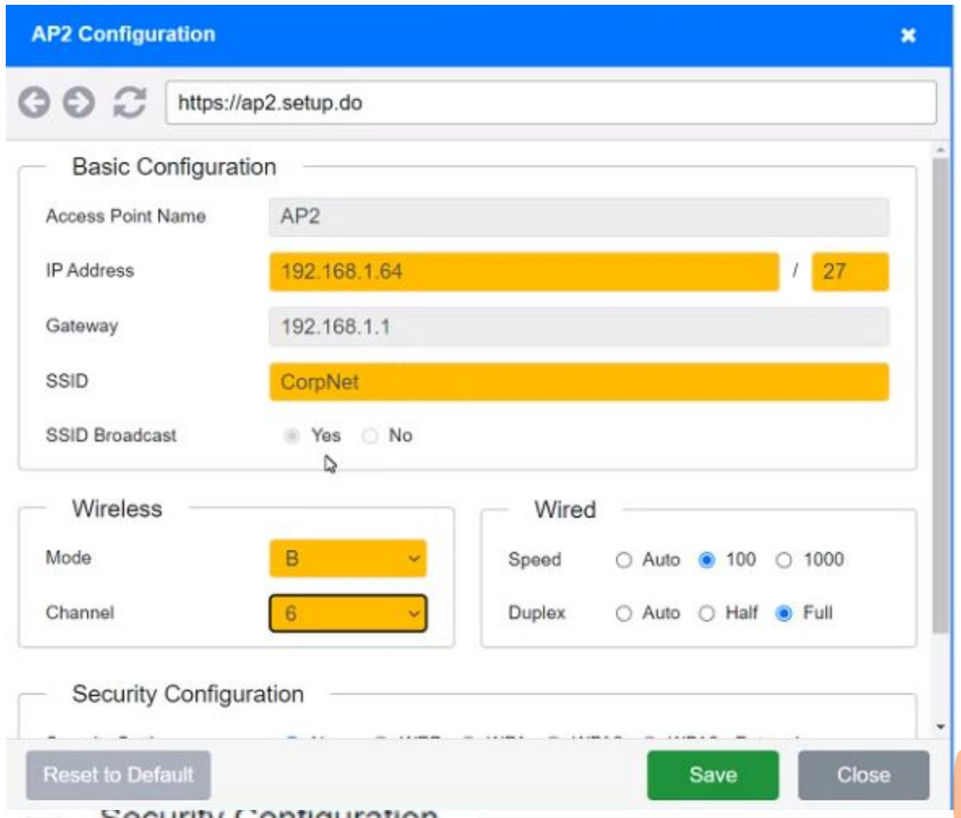


Exhibit 2 as follows
Access Point Name AP2


AP2 Configuration
https://ap2.setup.do
Basic Configuration
Access Point Name
AP2
IP Address
192.168.1.64
/
27
Gateway
192.168.1.1
SSID
CorpNet
SSID Broadcast
Yes
No
Wireless
Mode
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Channel
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Wired
Speed
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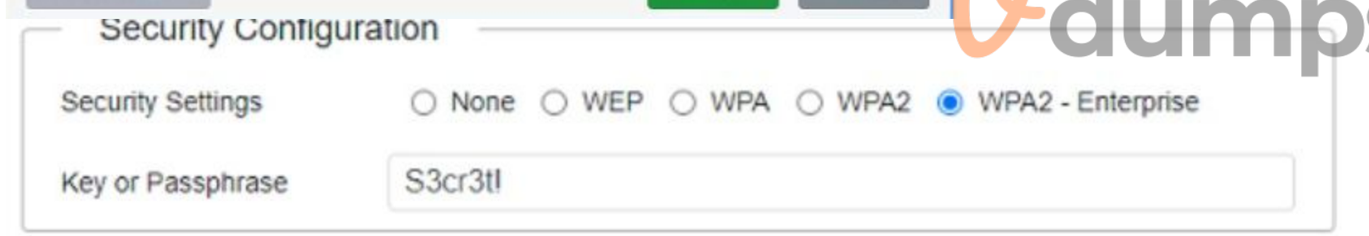
1000
Duplex
Auto
Half
Full
Security Configuration
Reset to Default
Save
Close


Security Configuration
Security Settings
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WEP
WPA
WPA2
WPA2 - Enterprise
Key or Passphrase
S3cr3tI

Vdumps

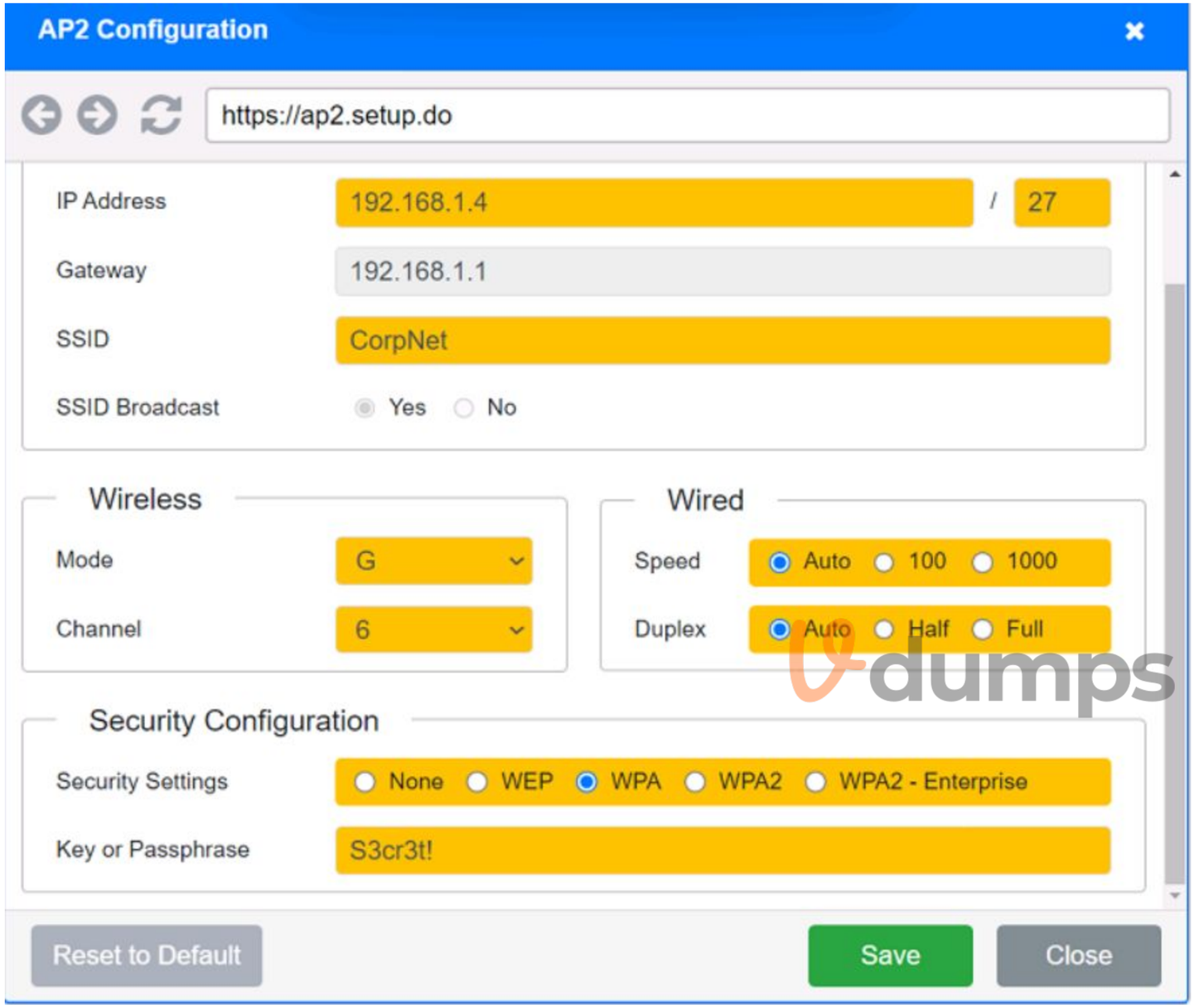
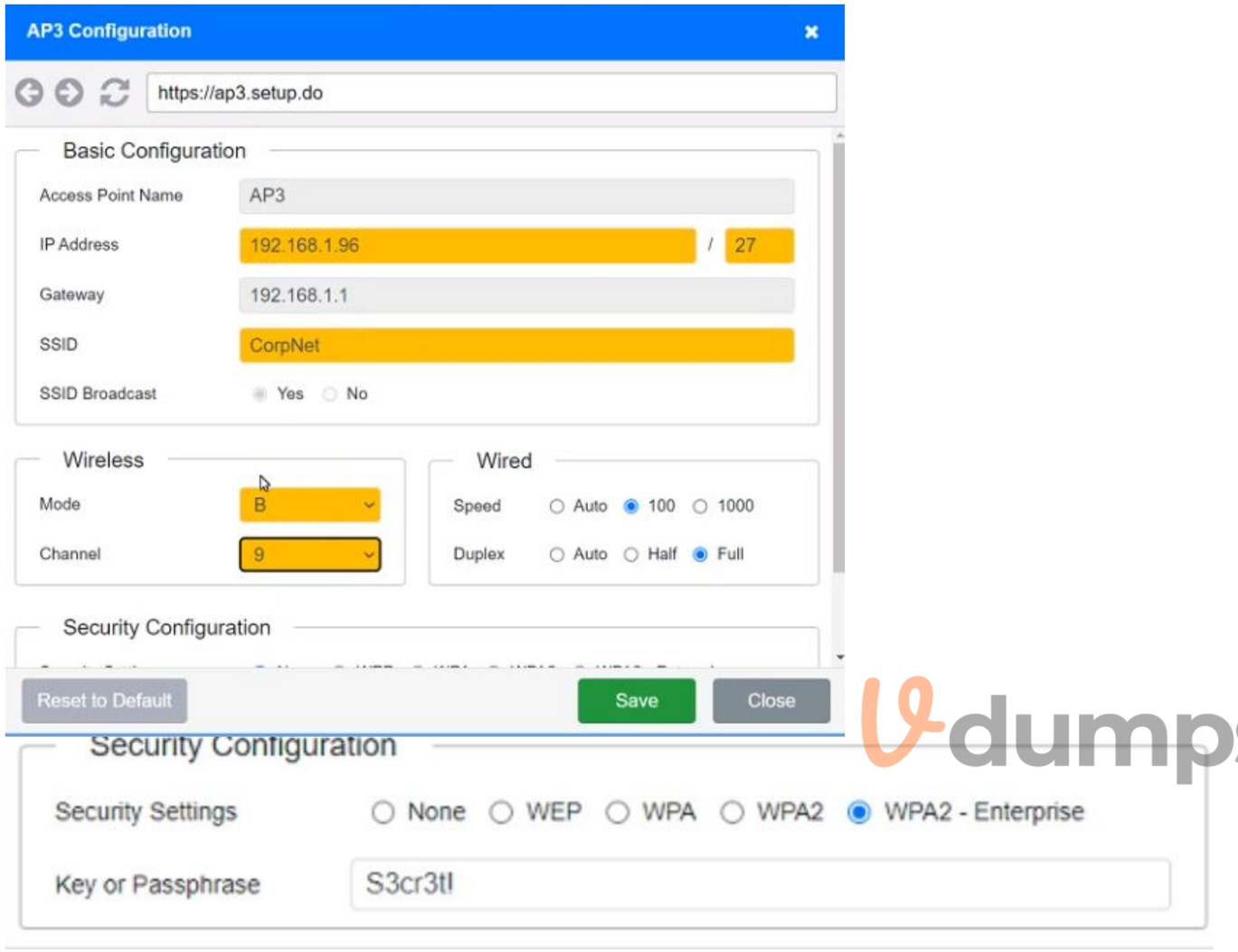


Exhibit 3 as follows
Access Point Name AP3


AP3 Configuration
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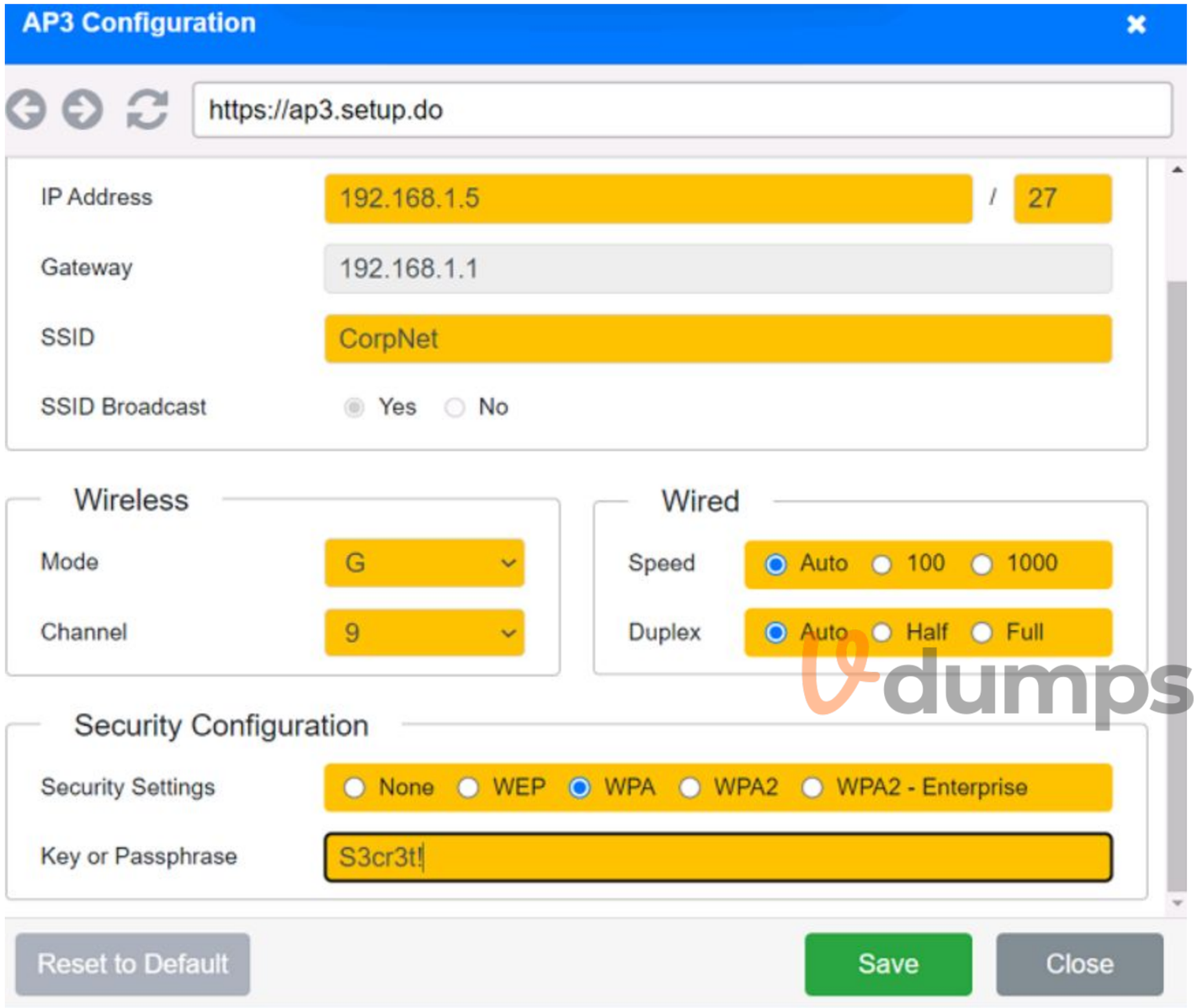
Basic Configuration
Access Point Name
AP3
IP Address
192.168.1.96
/
27
Gateway
192.168.1.1
SSID
CorpNet
SSID Broadcast
Yes
No
Wireless
Mode
B
Channel
9
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
Security Configuration
Reset to Default
Save
Close
Security Configuration
Security Settings
None
WEP
WPA
WPA2
WPA2 - Enterprise
Key or Passphrase
S3cr3t!

Vdumps



QUESTION 7
SIMULATION
You have been tasked with setting up a wireless network in an office. The network will consist of 3 Access Points and a single switch. The network must meet the following parameters:
The SSIDs need to be configured as CorpNet with a key of S3cr3t!
The wireless signals should not interfere with each other
The subnet the Access Points and switch are on should only support 30 devices maximum
The Access Points should be configured to only support TKIP clients at a maximum speed
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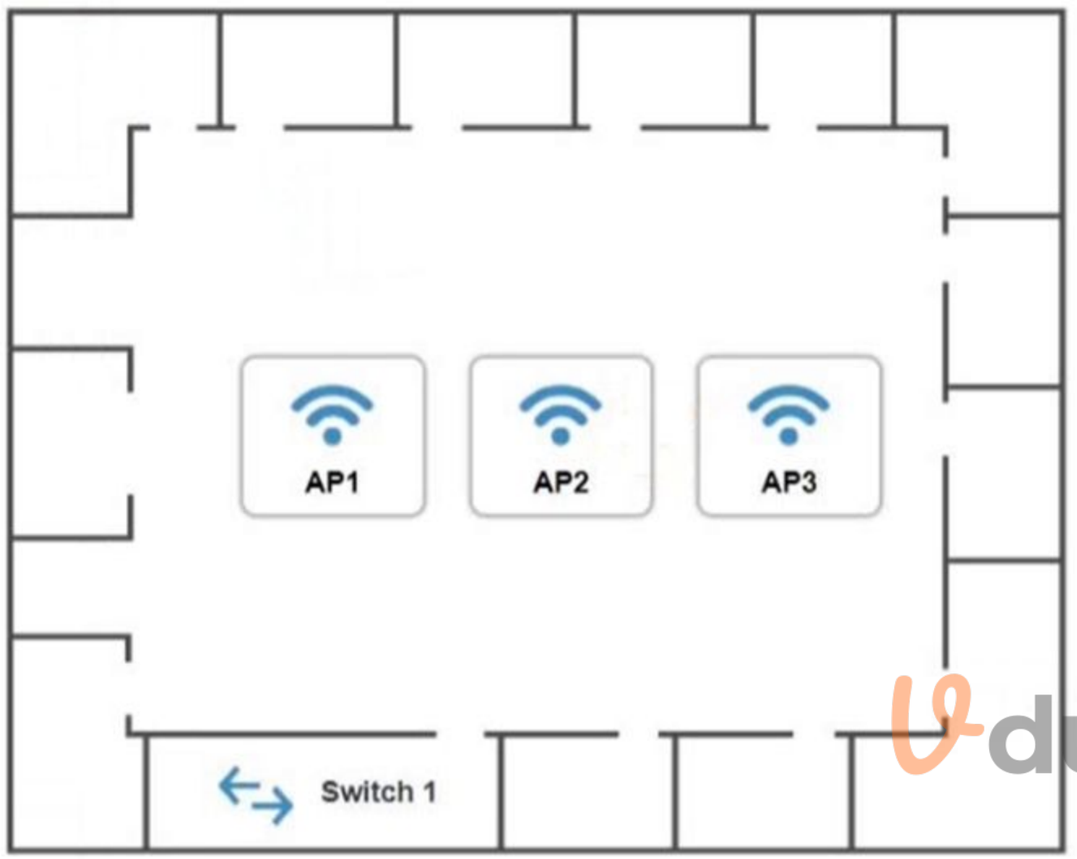
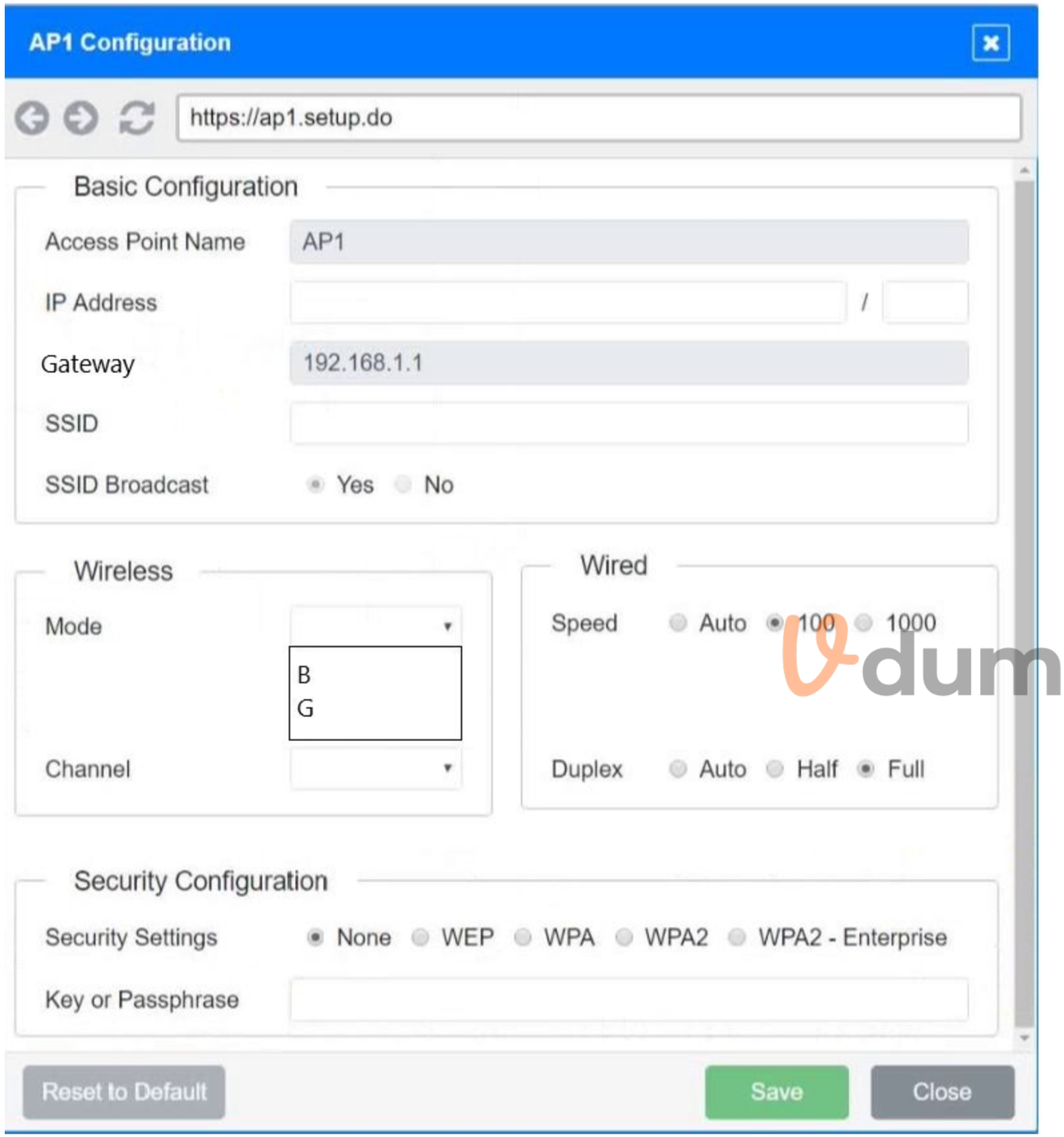


192.168.1.2
Speed: Auto
Duplex: Auto

Vdumps


AP1 Configuration
https://ap1.setup.do
Basic Configuration
Access Point Name
AP1
IP Address
/
Gateway
192.168.1.1
SSID
SSID Broadcast
Yes
No
Wireless
Mode
B
G
Channel
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
Security Configuration
Security Settings
None
WEP
WPA
WPA2
WPA2 - Enterprise
Key or Passphrase
Reset to Default
Save
Close

Vdumps

AP2 Configuration
https://ap2.setup.do
Basic Configuration
Access Point Name
AP2
IP Address
/
Gateway
192.168.1.1
SSID
SSID Broadcast
Yes
No
Wireless
Mode
B
G
Channel
1
2
3
4
5
6
7
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10
11
Wired
Speed
Auto
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Security Configuration
Security Settings
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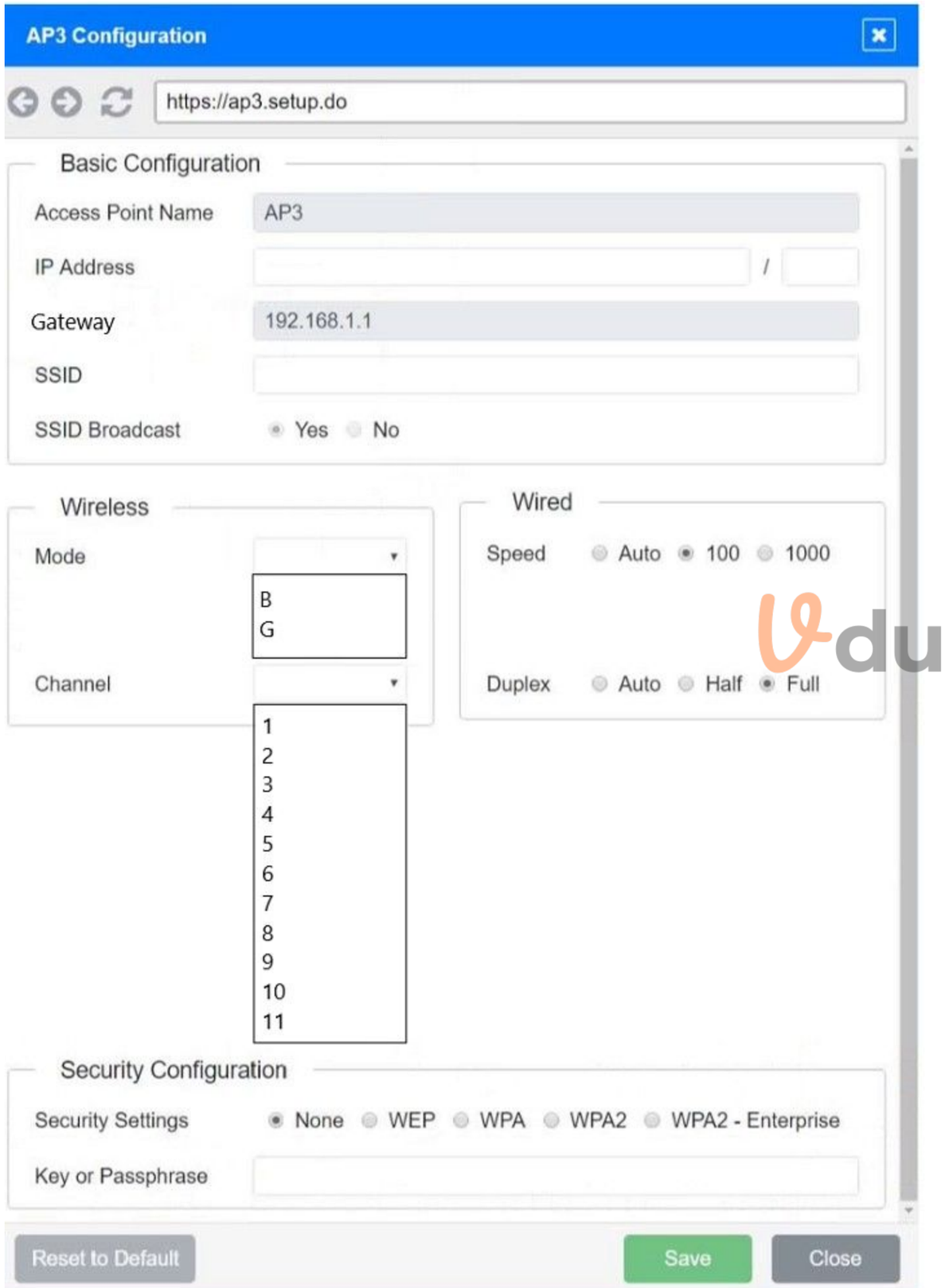
WPA
WPA2
WPA2 - Enterprise
Key or Passphrase
Reset to Default
Save
Close

vdumps


AP3 Configuration
https://ap3.setup.do
Basic Configuration
Access Point Name
AP3
IP Address
/
Gateway
192.168.1.1
SSID
SSID Broadcast
Yes
No
Wireless
Mode
B
G
Channel
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4
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8
9
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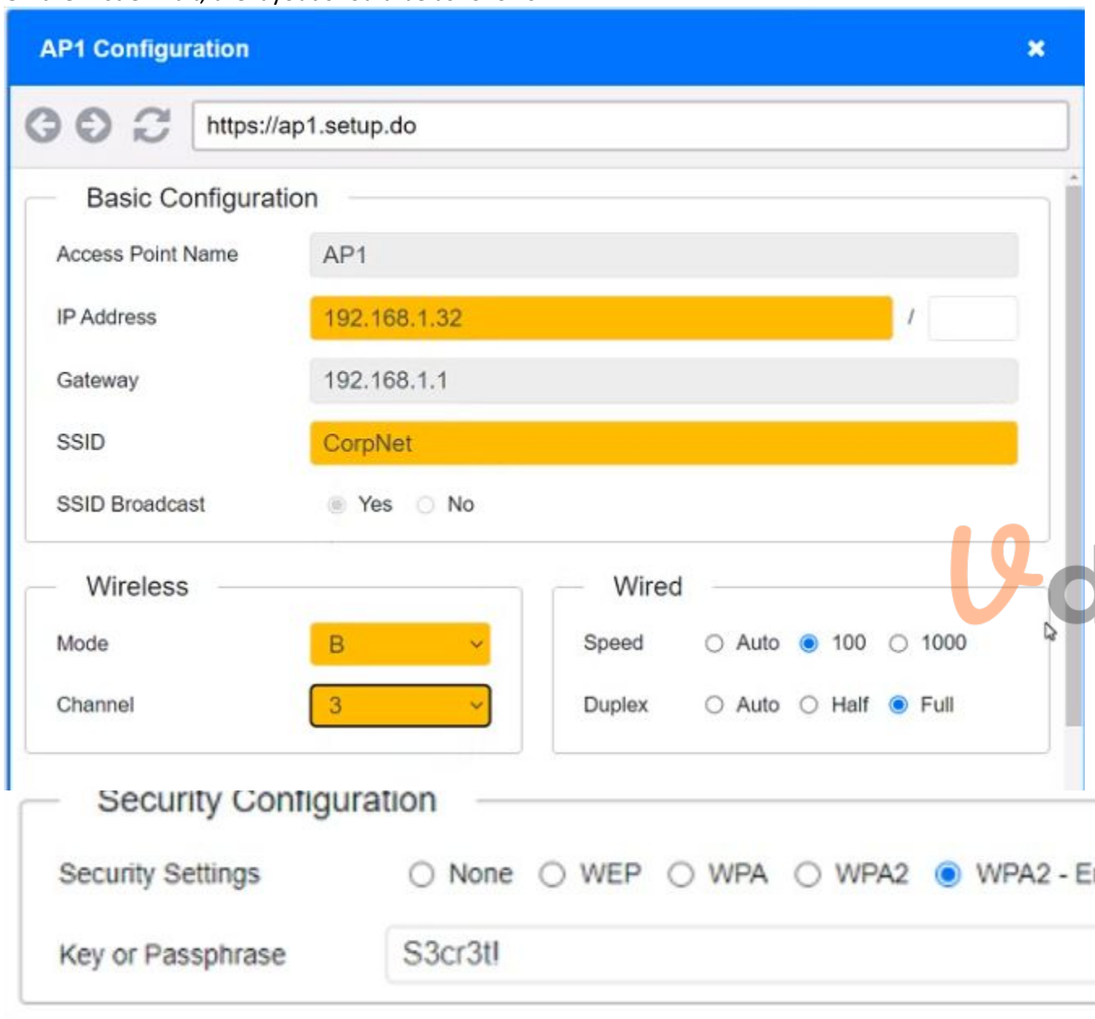
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
Security Configuration
Security Settings
None
WEP
WPA
WPA2
WPA2 - Enterprise
Key or Passphrase
Reset to Default
Save
Close

vdumps

A. See explanation below

Correct Answer: A
Section:
Explanation:
On the first exhibit, the layout should be as follows



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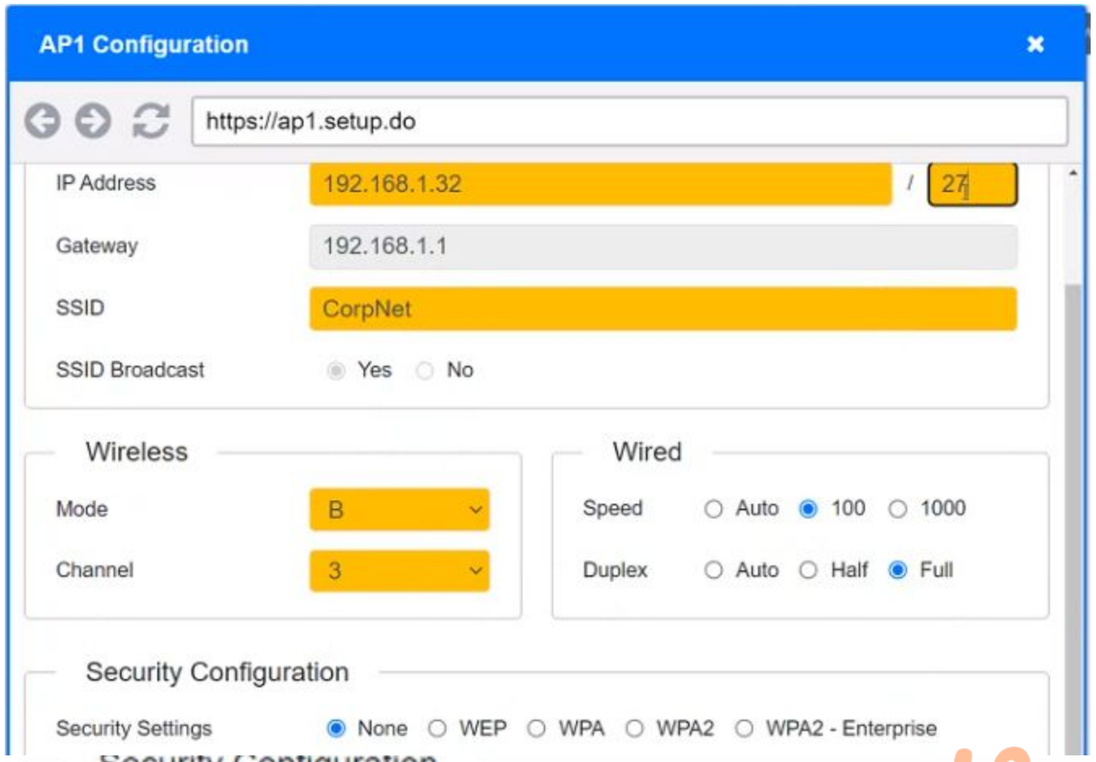
AP1 Configuration
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IP Address
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27
Gateway
192.168.1.1
SSID
CorpNet
SSID Broadcast
Yes
No
Wireless
Mode
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Channel
3
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
Security Configuration
Security Settings
None
WEP
WPA
WPA2
WPA2 - Enterprise

Security Configuration
Security Settings
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WPA
WPA2
WPA2 - Enterprise
Key or Passphrase
S3cr3tI

Vdumps

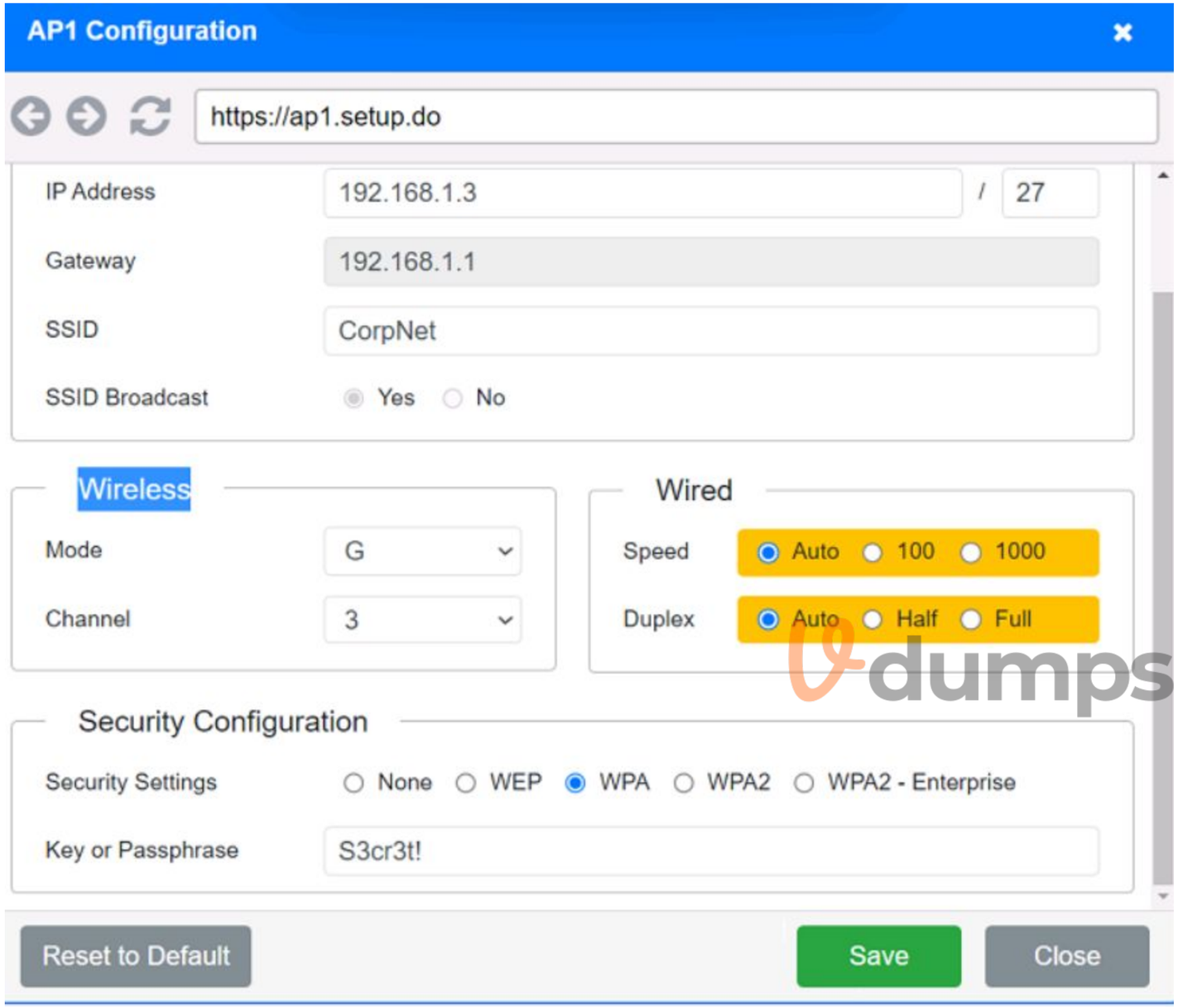
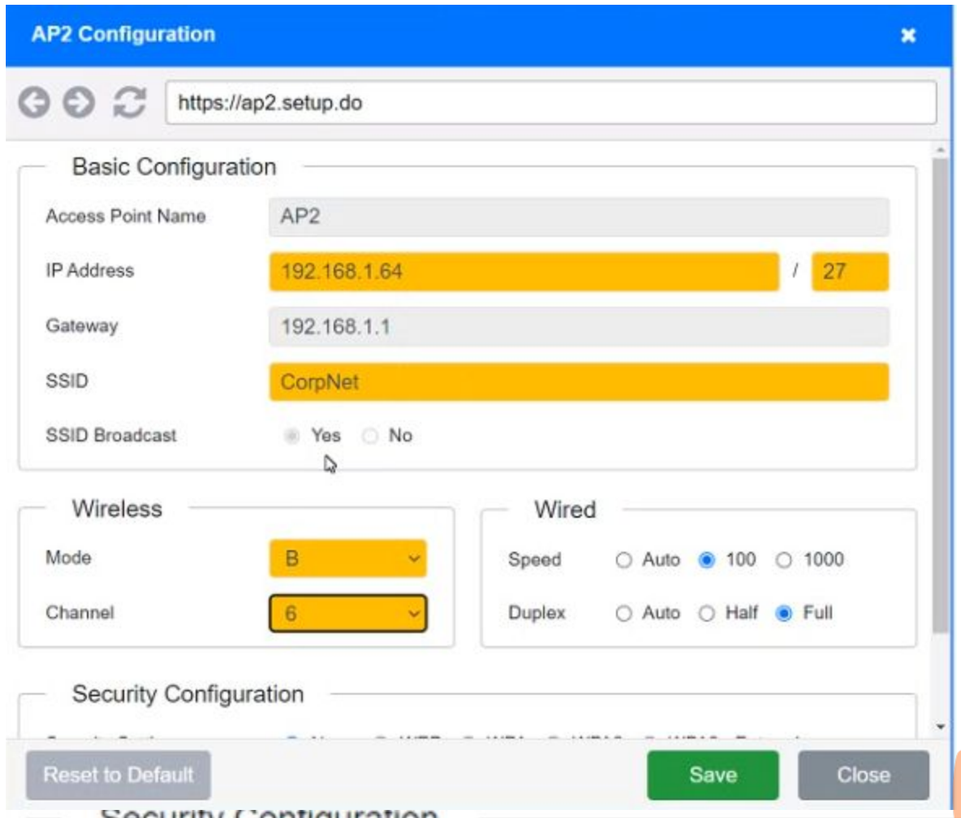


Exhibit 2 as follows
Access Point Name AP2


AP2 Configuration
https://ap2.setup.do
Basic Configuration
Access Point Name
AP2
IP Address
192.168.1.64
/
27
Gateway
192.168.1.1
SSID
CorpNet
SSID Broadcast
Yes
No
Wireless
Mode
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Channel
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Wired
Speed
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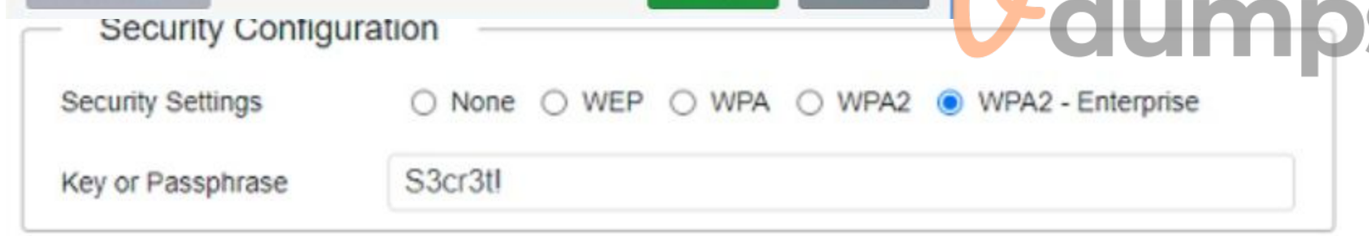
1000
Duplex
Auto
Half
Full
Security Configuration
Reset to Default
Save
Close


Security Configuration
Security Settings
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WEP
WPA
WPA2
WPA2 - Enterprise
Key or Passphrase
S3cr3tI

Vdumps

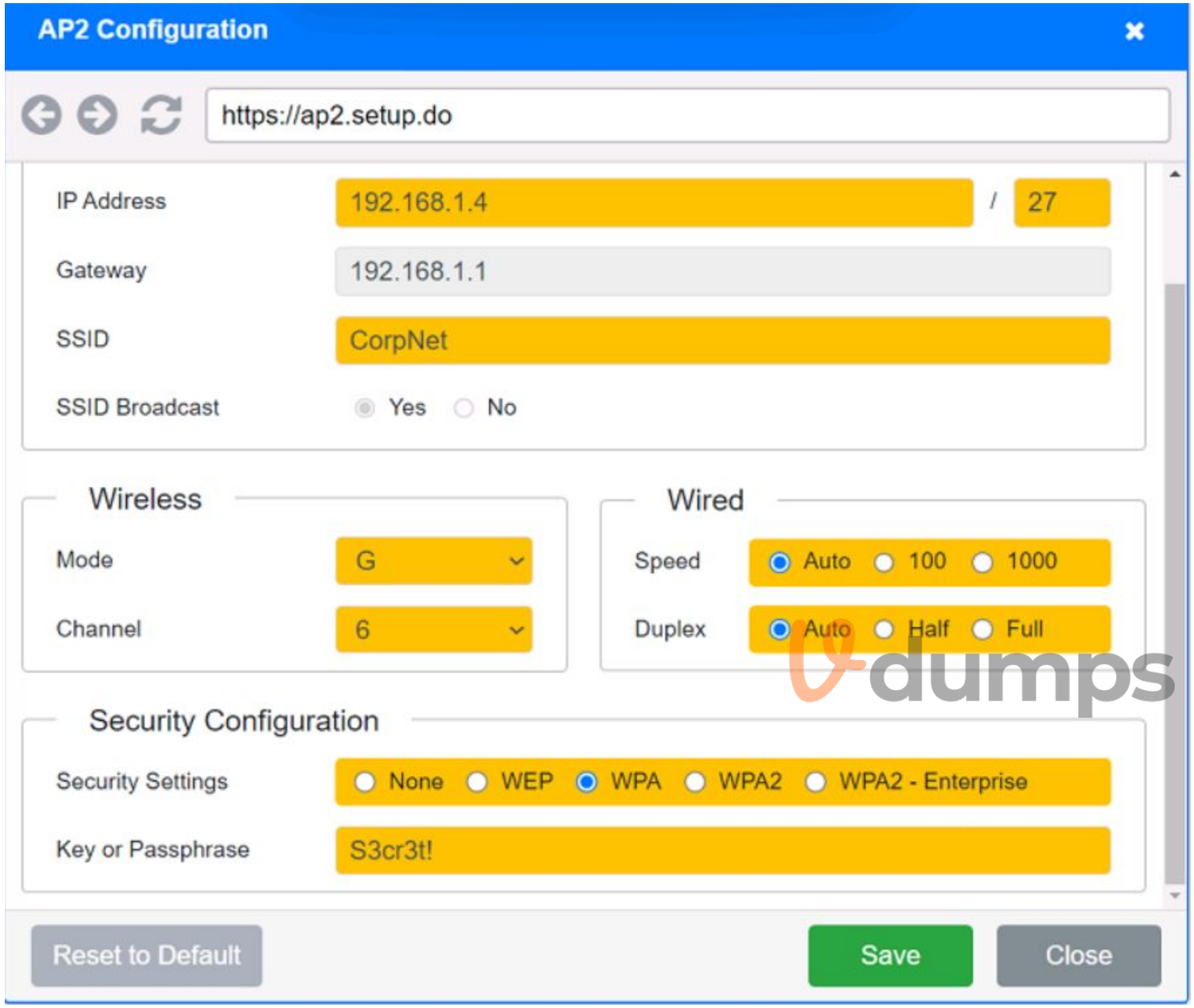
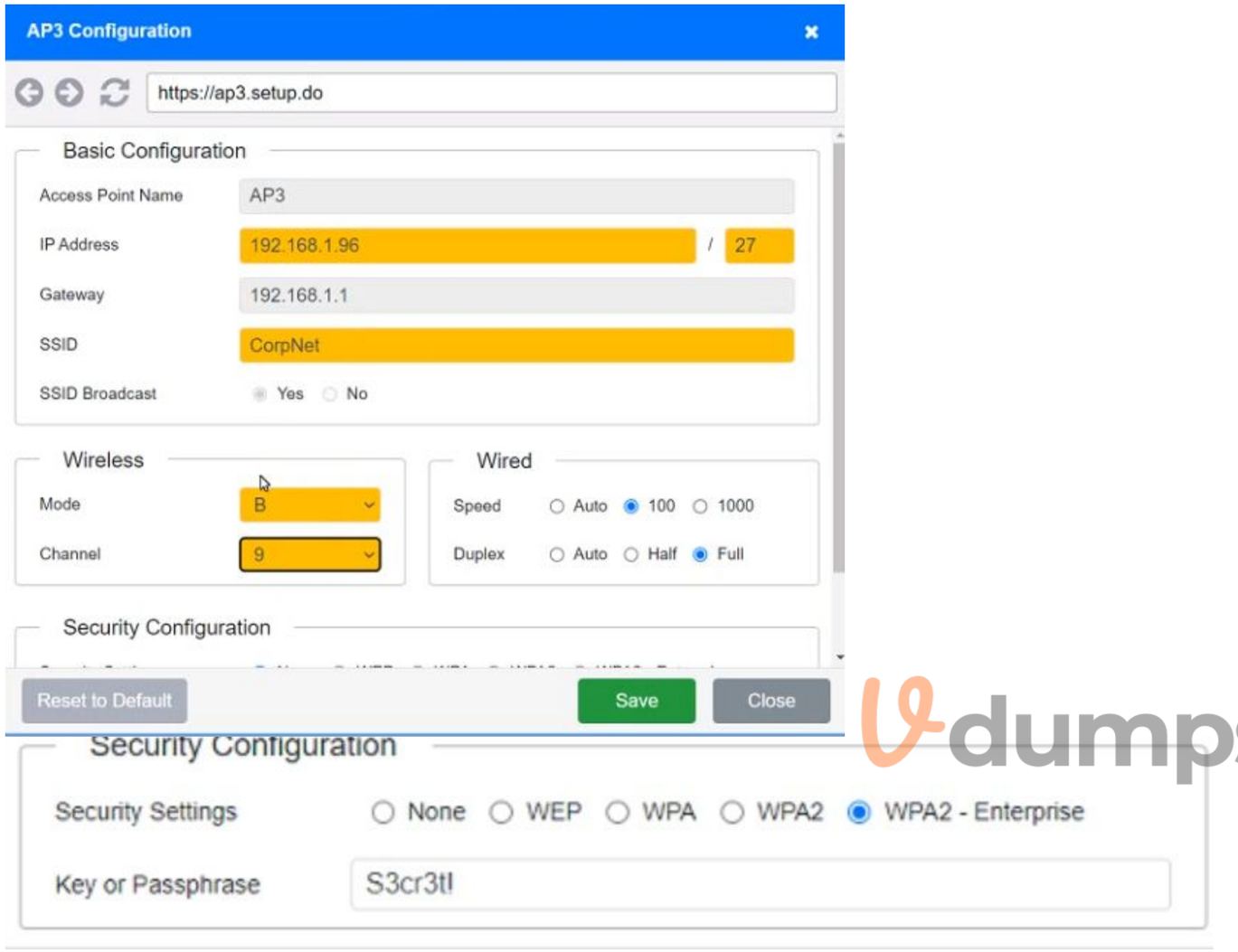


Exhibit 3 as follows
Access Point Name AP3


AP3 Configuration
https://ap3.setup.do
Basic Configuration
Access Point Name
AP3
IP Address
192.168.1.96
/
27
Gateway
192.168.1.1
SSID
CorpNet
SSID Broadcast
Yes
No
Wireless
Mode
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Duplex
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Security Configuration
Reset to Default
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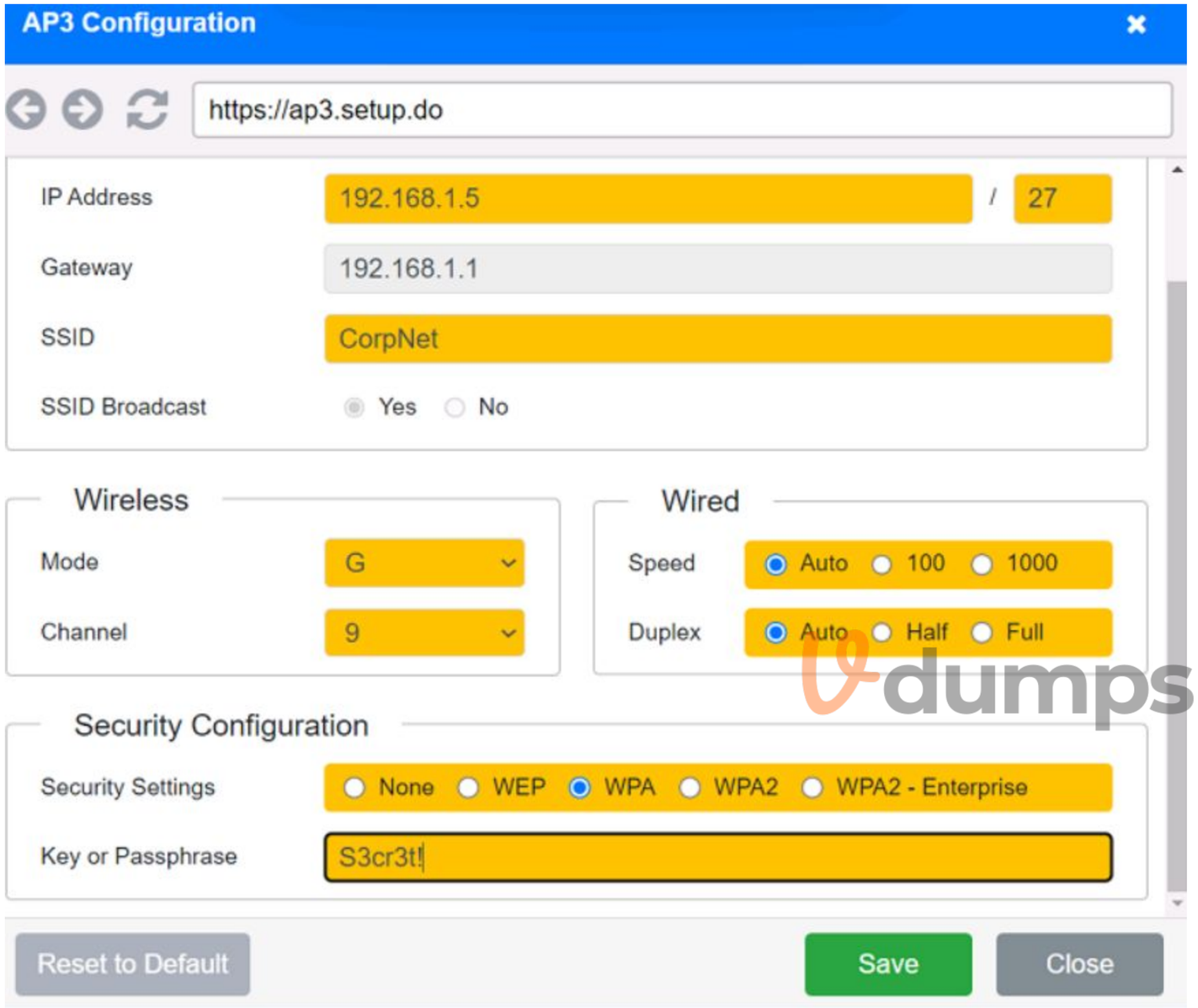
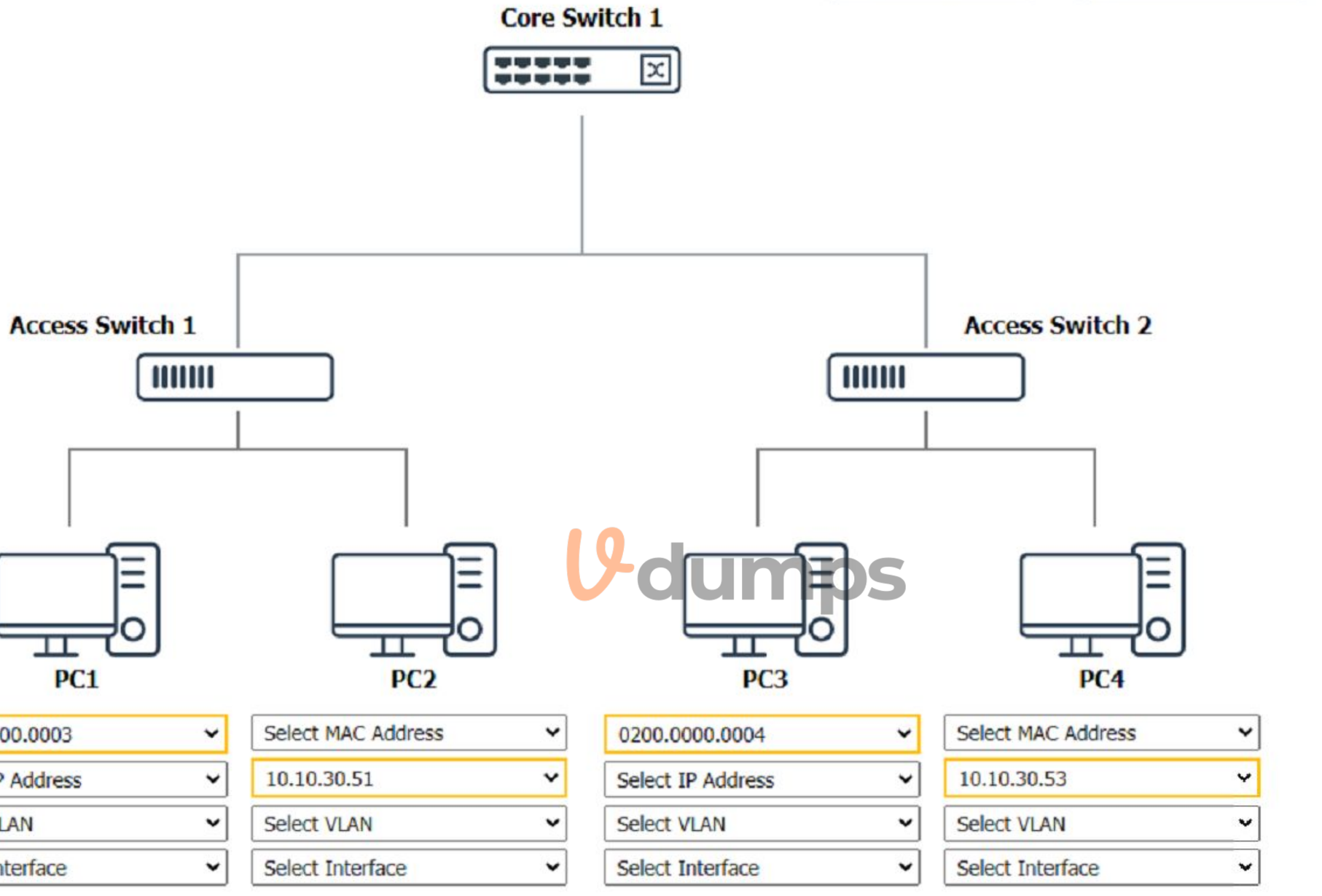
Security Settings
None
WEP
WPA
WPA2
WPA2 - Enterprise
Key or Passphrase
S3cr3t!

Vdumps



QUESTION 8
SIMULATION
A network technician was recently onboarded to a company. A manager has tasked the technician with documenting the network and has provided the technician With partial information from previous documentation.
Instructions:
Click on each switch to perform a network discovery by entering commands into the terminal. Fill in the missing information using drop-down menus provided.



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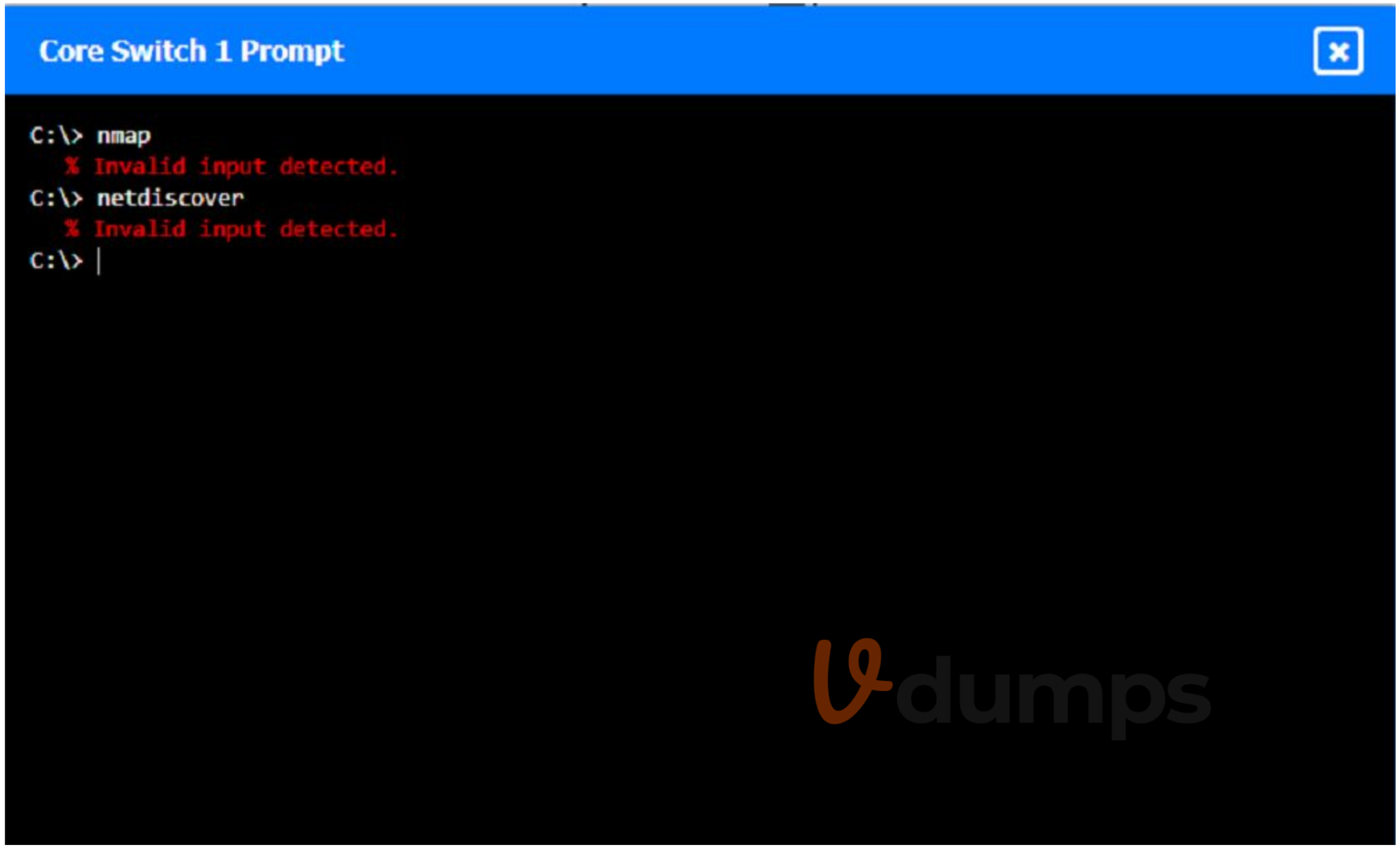
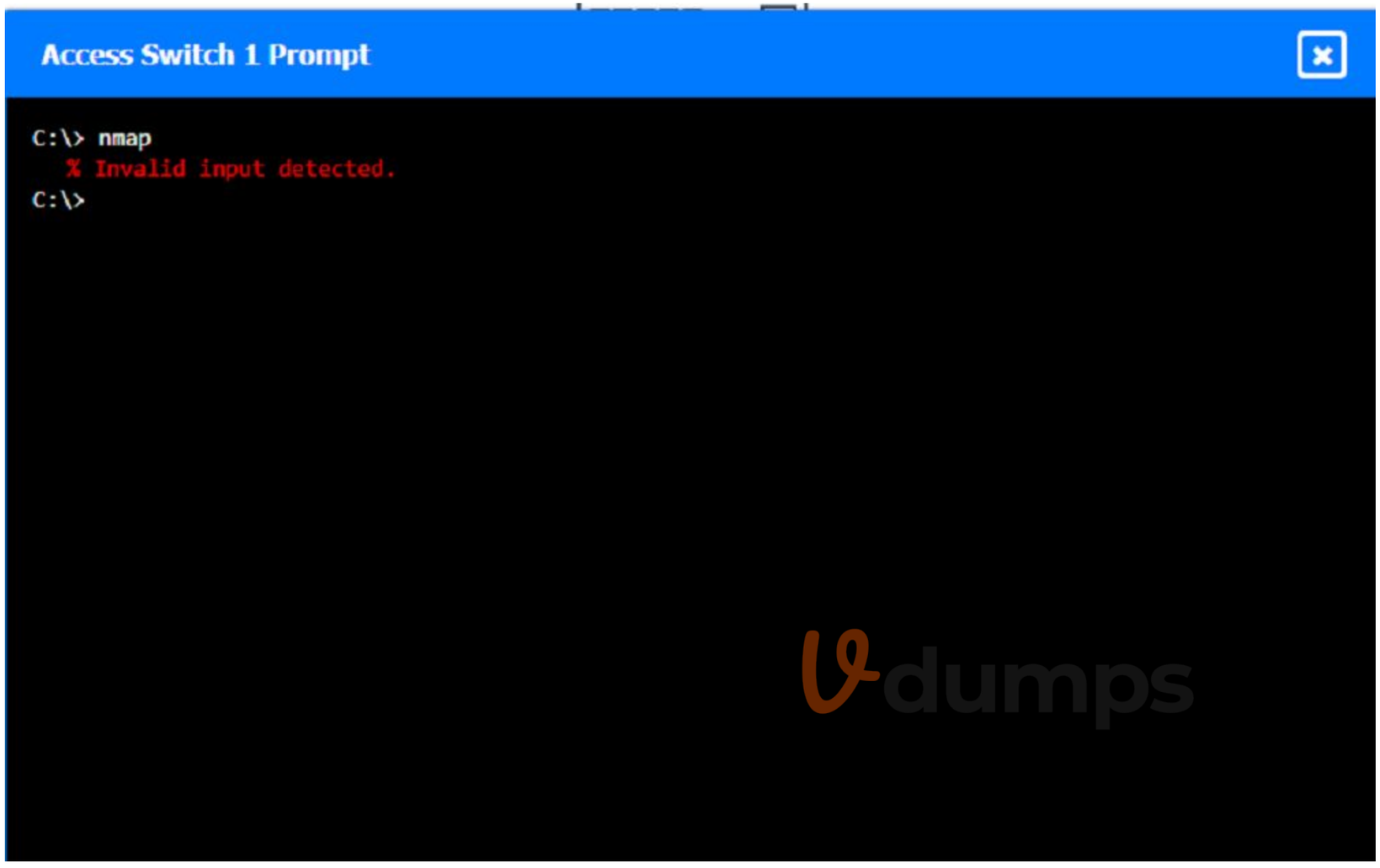
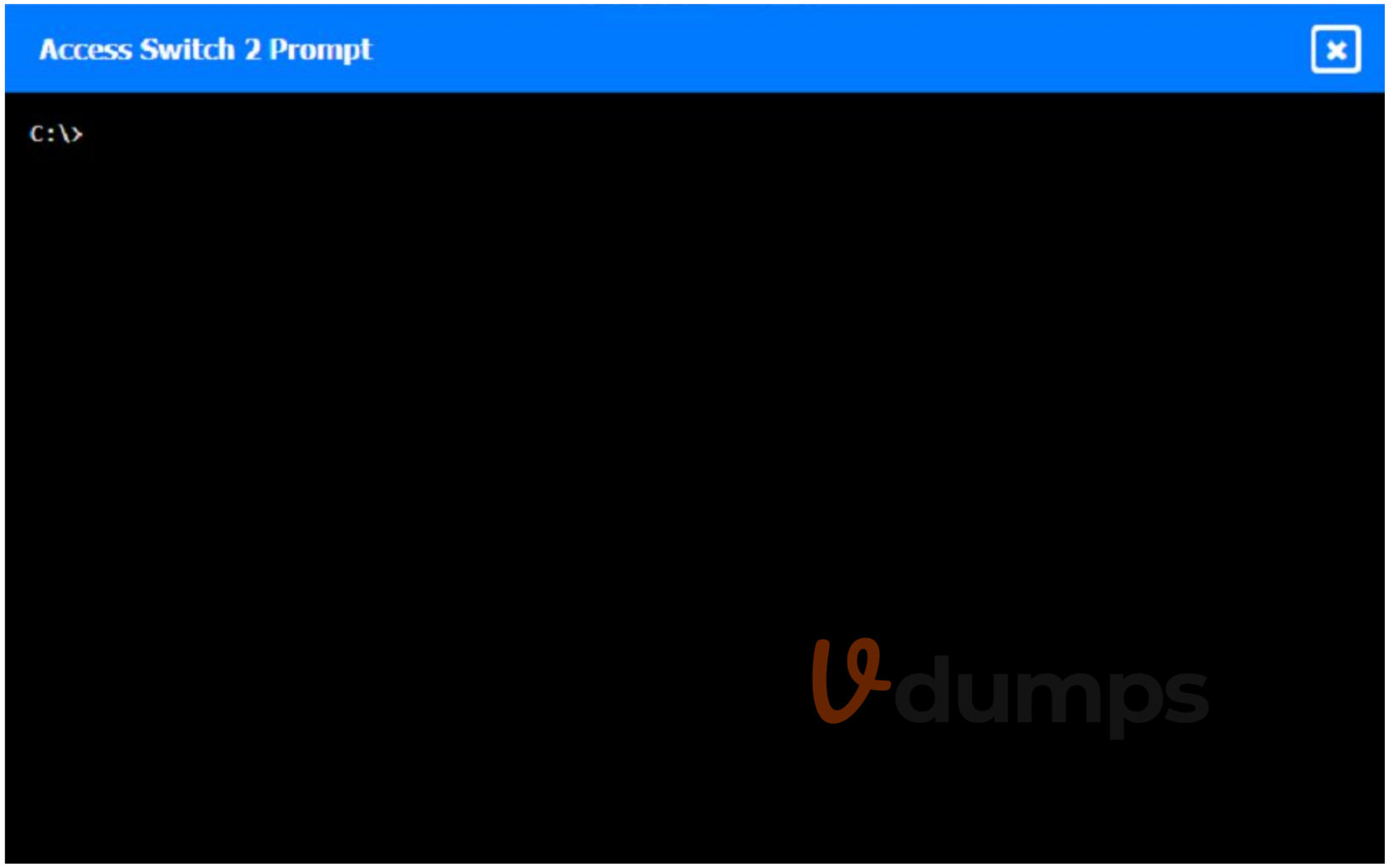

Core Switch 1 Prompt
C:\> nmap
% Invalid input detected.
C:\> netdiscover
% Invalid input detected.
C:\>


Access Switch 1 Prompt
C:\> nmap
% Invalid input detected.
C:\>

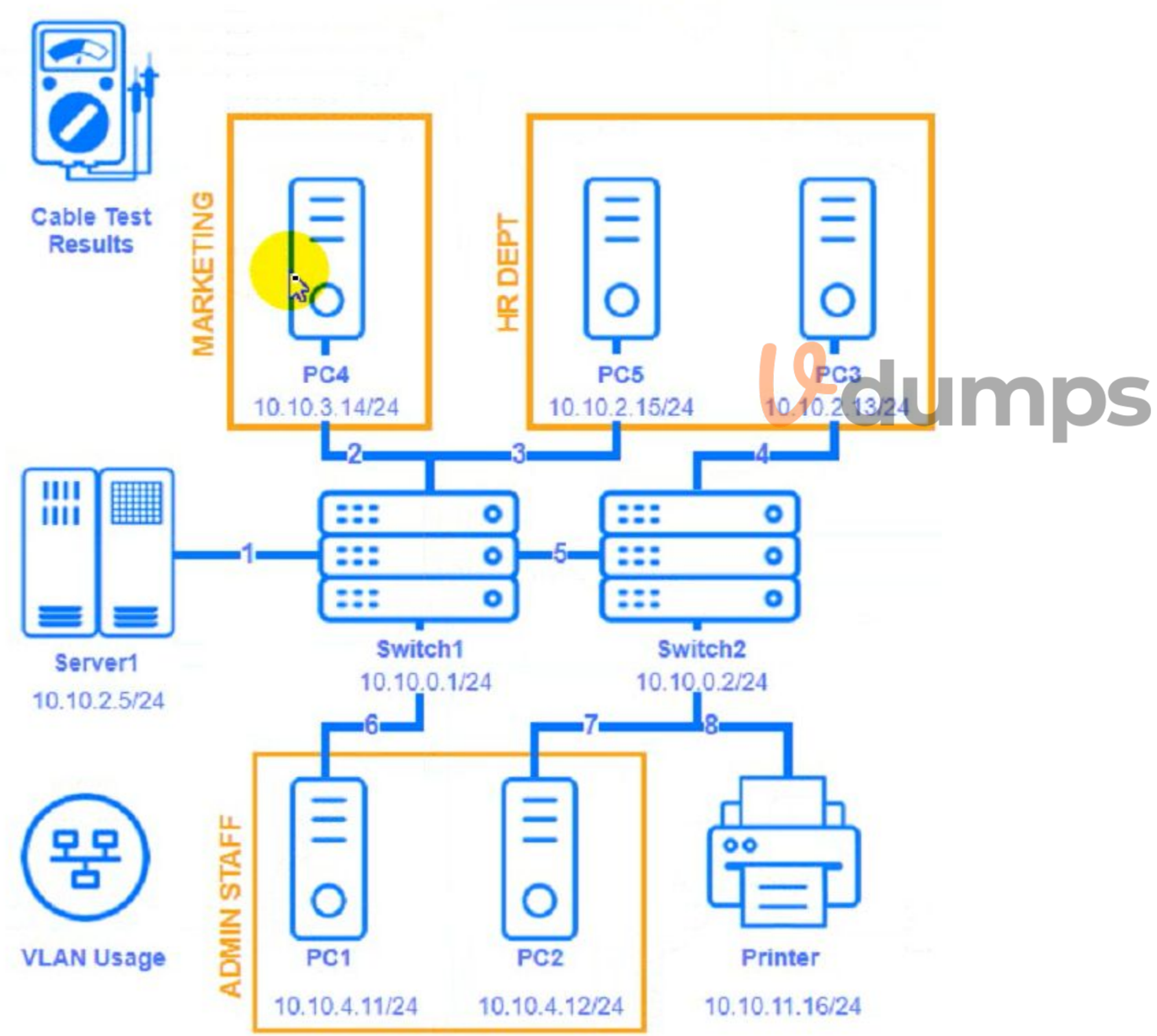


A. See the Explanation for detailed information on this simulation

Correct Answer: A
Section:
Explanation:
(Note: Ips will be change on each simulation task, so we have given example answer for the understanding)
To perform a network discovery by entering commands into the terminal, you can use the following steps:
Click on each switch to open its terminal window.
Enter the commandshow ip interface briefto display the IP addresses and statuses of the switch interfaces.
Enter the commandshow vlan briefto display the VLAN configurations and assignments of the switch interfaces.
Enter the commandshow cdp neighborsto display the information about the neighboring devices that are connected to the switch.
Fill in the missing information in the diagram using the drop-down menus provided.
Here is an example of how to fill in the missing information for Core Switch 1:
The IP address of Core Switch 1 is192.168.1.1.
The VLAN configuration of Core Switch 1 isVLAN 1: 192.168.1.0/24, VLAN 2: 192.168.2.0/24, VLAN 3: 192.168.3.0/24.
The neighboring devices of Core Switch 1 areAccess Switch 1 and Access Switch 2.
The interfaces that connect Core Switch 1 to Access Switch 1 areGigabitEthernet0/1 and GigabitEthernet0/2.

The interfaces that connect Core Switch 1 to Access Switch 2 areGigabitEthernet0/3 and GigabitEthernet0/4.
You can use the same steps to fill in the missing information for Access Switch 1 and Access Switch 2.

QUESTION 9
SIMULATION
A network technician needs to resolve some issues with a customer's SOHO network.
The customer reports that some of the devices are not connecting to the network, while others appear to work as intended.
INSTRUCTIONS
Troubleshoot all the network components and review the cable test results by Clicking on each device and cable.
Diagnose the appropriate component(s) by identifying any components with a problem and recommend a solution to correct each problem.



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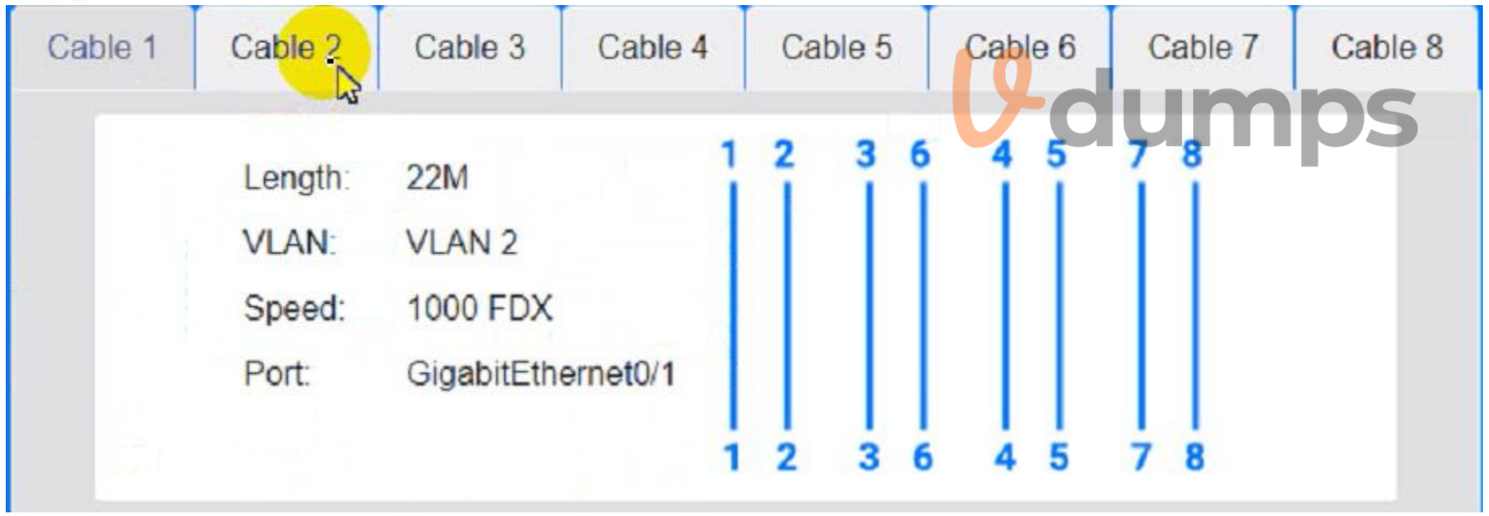
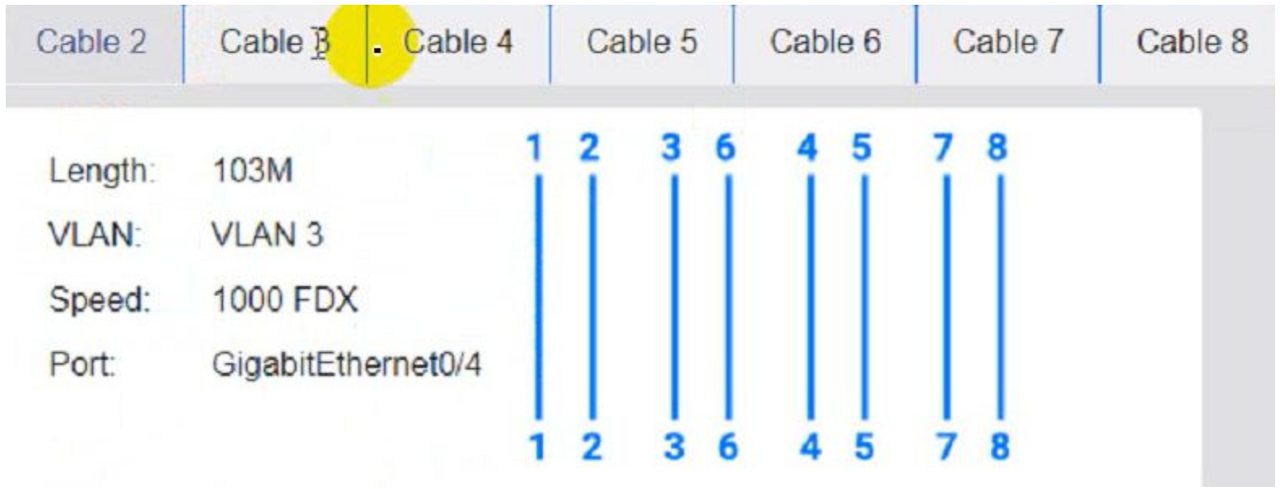
Cable Test Results:

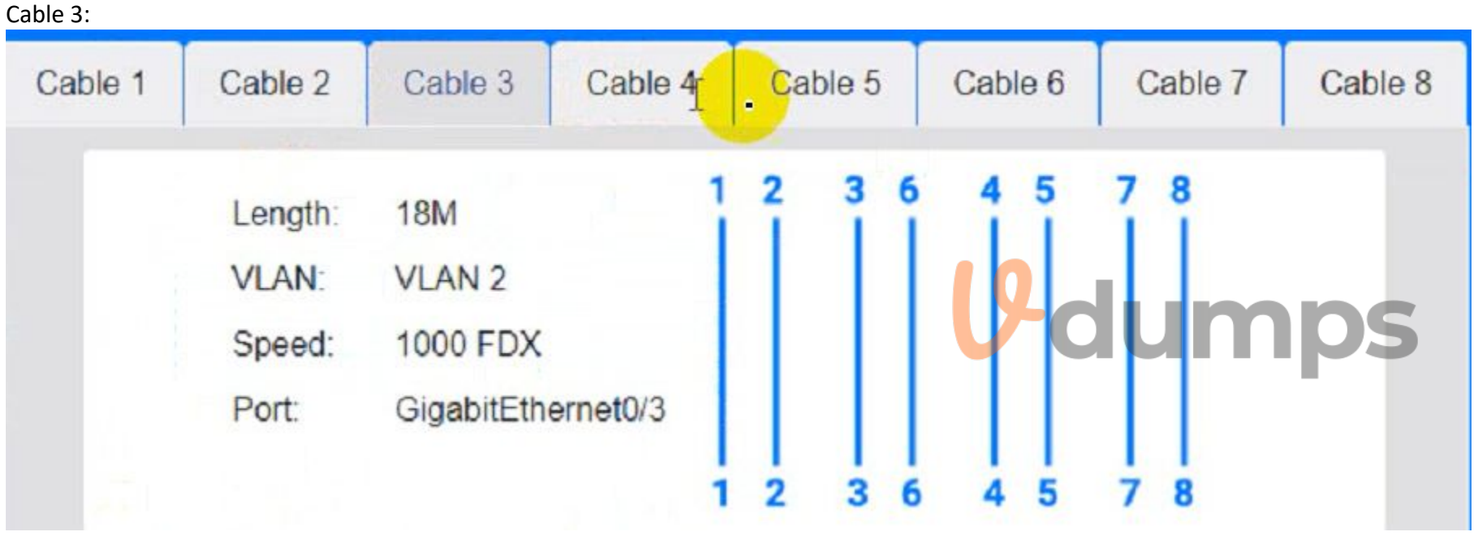
Cable 1:



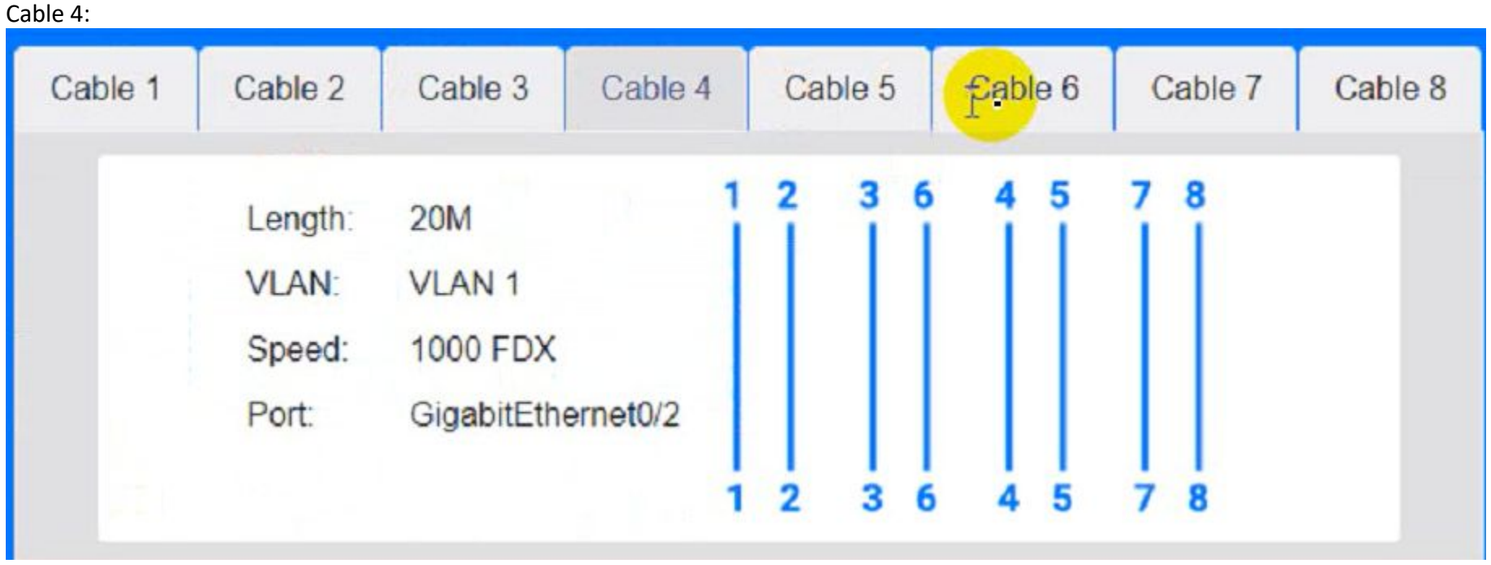
Cable 2:



Cable 3:



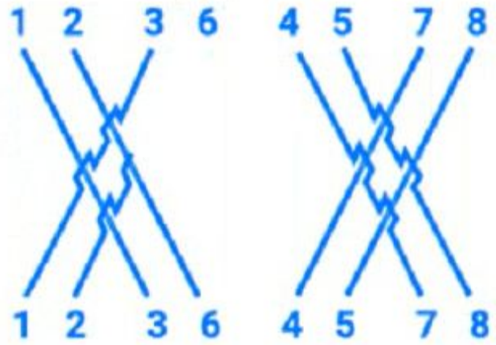
Cable 4:



Cable Test Results

Cable 1 | Cable 2 | Cable 3 | Cable 4 | Cable 5 | Cable 6 | Cable 7 | Cable 8

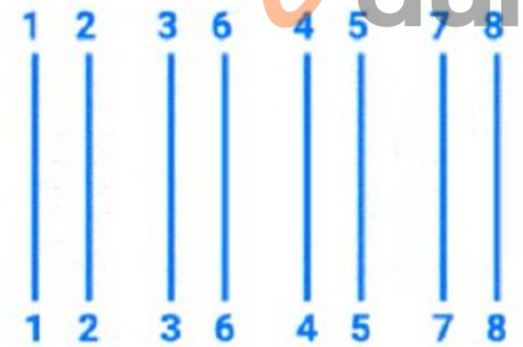
Length: 16M
VLAN: VLAN 1
Speed: 1000 FDX
Port: GigabitEthernet0/5



Cable Test Results

Cable 1 | Cable 2 | Cable 3 | Cable 4 | Cable 5 | Cable 6 | Cable 7 | Cable 8

Length: 42M
VLAN: VLAN 4
Speed: 1000 FDX
Port: GigabitEthernet0/2



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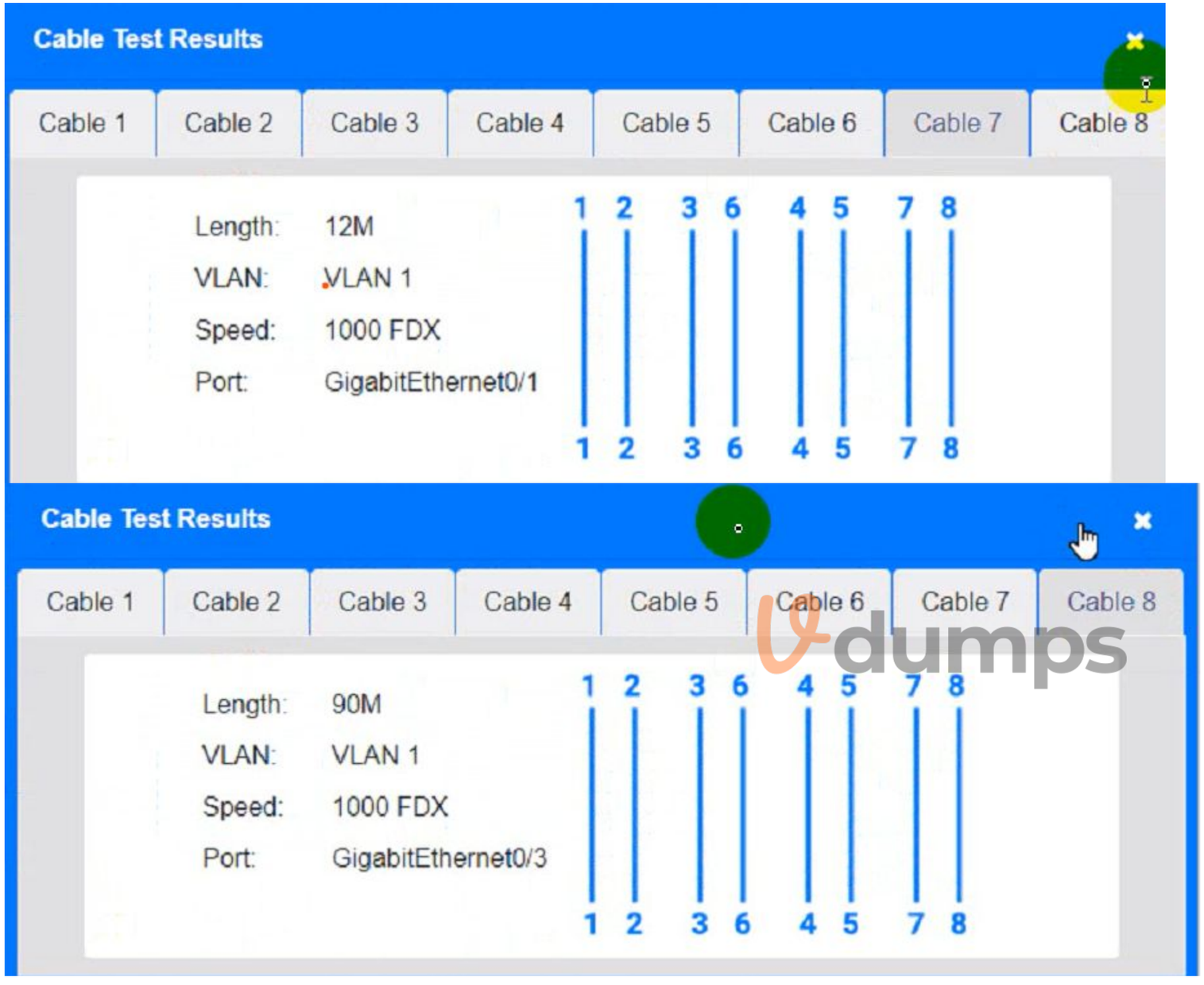

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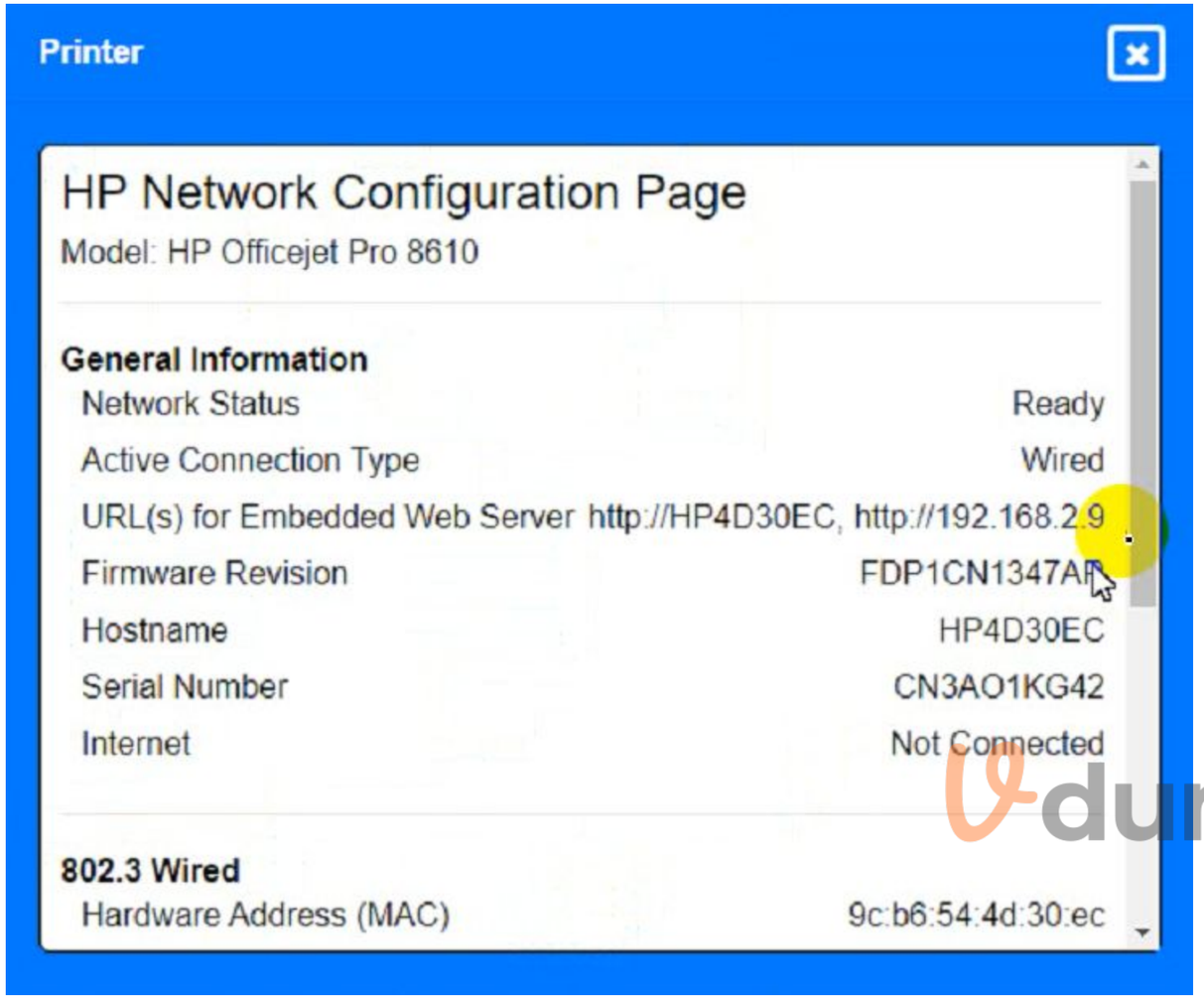
Printer
HP Network Configuration Page
Model: HP Officejet Pro 8610
General Information
Network Status
Ready
Active Connection Type
Wired
URL(s) for Embedded Web Server
http://HP4D30EC, http://192.168.2.9
Firmware Revision
FDP1CN1347AR
Hostname
HP4D30EC
Serial Number
CN3AO1KG42
Internet
Not Connected
802.3 Wired
Hardware Address (MAC)
9c:b6:54:4d:30:ec

Vdumps

Printer
Internet
Not Connected
802.3 Wired
Hardware Address (MAC)
9c:b6:54:4d:30:ec
Link Configuration
None
IPv4
IP Address
10.10.11.56
Subnet Mask
255.255.255.0
Default Gateway
10.10.11.1
Configuration Source
DHCP
Primary DNS Server
8.8.8.8
Secondary DNS Server
8.8.4.4
Total Packets Transmitted
15655
Total Packets Received
394068

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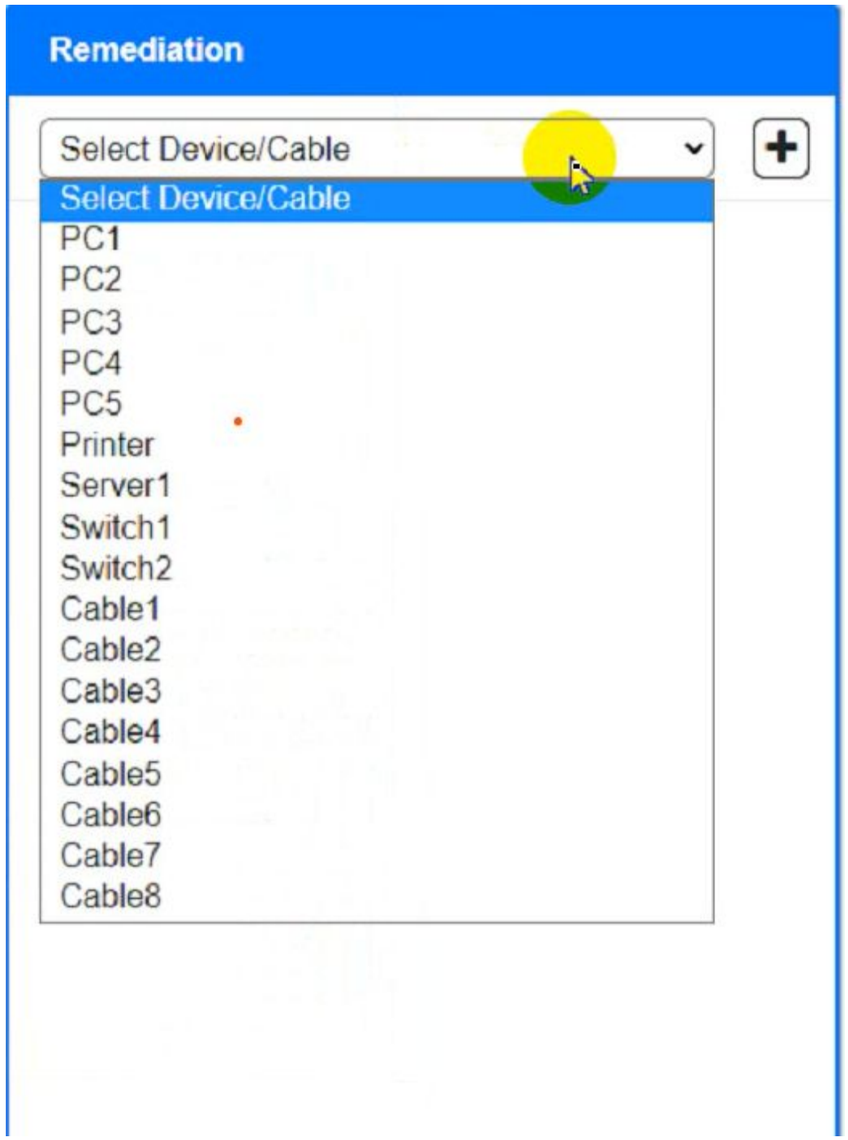

A. See the Explanation for detailed information on this simulation

Correct Answer: A
Section:
Explanation:
(Note: Ips will be change on each simulation task, so we have given example answer for the understanding)
To troubleshoot all the network components and review the cable test results, you can use the following steps:
Click on each device and cable to open its information window.
Review the information and identify any problems or errors that may affect the network connectivity or performance.
Diagnose the appropriate component(s) by identifying any components with a problem and recommend a solution to correct each problem.
Fill in the remediation form using the drop-down menus provided.
Here is an example of how to fill in the remediation form for PC1:
The component with a problem isPC1.

The problem isIncorrect IP address.
The solution isChange the IP address to 192.168.1.10.
You can use the same steps to fill in the remediation form for other components.
To enter commands in each device, you can use the following steps:
Click on the device to open its terminal window.
Enter the commandipconfig /allto display the IP configuration of the device, including its IP address, subnet mask, default gateway, and DNS servers.
Enter the commandping <IP address>to test the connectivity and reachability to another device on the network by sending and receiving echo packets. Replace <IP address> with the IP address of the destination device, such as 192.168.1.1 for Core Switch 1.
Enter the commandtracert <IP address>to trace the route and measure the latency of packets from the device to another device on the network by sending and receiving packets with increasing TTL values. Replace <IP address> with the IP address of the destination device, such as 192.168.1.1 for Core Switch 1.
Here is an example of how to enter commands in PC1:
Click on PC1 to open its terminal window.
Enter the commandipconfig /allto display the IP configuration of PC1. You should see that PC1 has an incorrect IP address of 192.168.2.10, which belongs to VLAN 2 instead of VLAN 1.
Enter the commandping 192.168.1.1to test the connectivity to Core Switch 1. You should see that PC1 is unable to ping Core Switch 1 because they are on different subnets.
Enter the commandtracert 192.168.1.1to trace the route to Core Switch 1. You should see that PC1 is unable to reach Core Switch 1 because there is no route between them.
You can use the same steps to enter commands in other devices, such as PC3, PC4, PC5, and Server 1.

QUESTION 10
Which of the following steps of the troubleshooting methodology would most likely include checking through each level of the OSI model after the problem has been identified?

A. Establish a theory.
B. Implement the solution.
C. Create a plan of action.
D. Verify functionality.

Correct Answer: D
Section:
Explanation:
Introduction to Troubleshooting Methodology:
Network troubleshooting involves a systematic approach to identifying and resolving network issues. The CompTIA Network+ certification emphasizes a structured troubleshooting methodology.
Troubleshooting Steps:
Identify the problem: Gather information, identify symptoms, and question users.
Establish a theory of probable cause: Consider possible reasons for the issue.
Test the theory to determine cause: Validate the theory with tests.
Establish a plan of action to resolve the problem and implement the solution: Create and execute a resolution plan.
Verify functionality and implement preventive measures: Ensure the solution works and prevent recurrence.
Verifying Functionality:
After implementing a solution, verifying functionality ensures that the problem is fully resolved. This involves testing the network to confirm that it operates correctly.
Checking through each level of the OSI model helps to ensure that all potential issues at different layers (physical, data link, network, transport, session, presentation, and application) are addressed.
Explanation of the Options:
A . Establish a theory: This step involves hypothesizing possible causes, not verifying functionality.
B . Implement the solution: This step involves executing the resolution plan.
C . Create a plan of action: This step involves planning the resolution, not verification.
D . Verify functionality: This step involves comprehensive checks, including OSI model layers, to ensure the issue is fully resolved.
Conclusion:
Verifying functionality is a critical step in the troubleshooting process, ensuring that the network operates correctly after a solution is implemented. It involves thorough testing across all OSI model layers.
CompTIA Network+ guide explaining the troubleshooting methodology and the importance of verifying functionality (see page Ref 9Basic Configuration Commands).

QUESTION 11

A network administrator wants to implement security zones in the corporate network to control access to only individuals inside of the corporation. Which of the following security zones is the best solution?

A. Extranet
B. Trusted
C. VPN
D. Public

Correct Answer: B
Section:
Explanation:
Introduction to Security Zones:
Security zones are logical segments within a network designed to enforce security policies and control access. They help in segregating and securing different parts of the network.
Types of Security Zones:
Trusted Zone: This is the most secure zone, typically used for internal corporate networks where only trusted users have access.
Extranet: This zone allows controlled access to external partners, vendors, or customers.
VPN (Virtual Private Network): While VPNs are used to create secure connections over the internet, they are not a security zone themselves.
Public Zone: This zone is the least secure and is typically used for public-facing services accessible by anyone.
Trusted Zone Implementation:
The trusted zone is configured to include internal corporate users and resources. Access controls, firewalls, and other security measures ensure that only authorized personnel can access this zone.
Internal network segments, such as the finance department, HR, and other critical functions, are usually placed in the trusted zone.
Example Configuration:
Firewall Rules: Set up rules to allow traffic only from internal IP addresses.
Access Control Lists (ACLs): Implement ACLs on routers and switches to restrict access based on IP addresses and other criteria.
Segmentation: Use VLANs and subnetting to segment and isolate the trusted zone from other zones.
Explanation of the Options:
A . Extranet: Suitable for external partners, not for internal-only access.
B . Trusted: The correct answer, as it provides controlled access to internal corporate users.
C . VPN: A method for secure remote access, not a security zone itself.
D . Public: Suitable for public access, not for internal corporate users.
Conclusion:
Implementing a trusted zone is the best solution for controlling access within a corporate network. It ensures that only trusted internal users can access sensitive resources, enhancing network security.
CompTIA Network+ guide detailing security zones and their implementation in a corporate network (see page Ref 9Basic Configuration Commands).

QUESTION 12
Which of the following disaster recovery concepts is calculated by dividing the total hours of operation by the total number of units?

A. MTTR
B. MTBF
C. RPO
D. RTO

Correct Answer: B
Section:
Explanation:
Introduction to Disaster Recovery Concepts:
Disaster recovery involves strategies and measures to ensure business continuity and data recovery in the event of a disaster.
Mean Time Between Failures (MTBF):
MTBF is a reliability metric used to predict the time between failures of a system during operation. It is calculated by dividing the total operational time by the number of failures.
Formula: MTBF=TotalOperationalTimeNumberofFailures\text{MTBF} = \frac{\text{Total Operational Time}}{\text{Number of Failures}}MTBF=NumberofFailuresTotalOperationalTime

This metric helps in understanding the reliability and expected lifespan of systems and components.
Example Calculation:
If a server operates for 1000 hours and experiences 2 failures, the MTBF is: MTBF=1000hours2=500hours\text{MTBF} = \frac{1000 \text{ hours}}{2} = 500 \text{ hours}MTBF=21000hours=500hours
Explanation of the Options:
A . MTTR (Mean Time to Repair): The average time required to repair a system after a failure.
B . MTBF (Mean Time Between Failures): The correct answer, representing the average time between failures.
C . RPO (Recovery Point Objective): The maximum acceptable amount of data loss measured in time.
D . RTO (Recovery Time Objective): The target time set for the recovery of IT and business activities after a disaster.
Conclusion:
MTBF is a crucial metric in disaster recovery and system reliability, helping organizations plan maintenance and predict system performance.
CompTIA Network+ guide explaining MTBF, MTTR, RPO, and RTO concepts and their calculations (see page Ref 10How to Use Cisco Packet Tracer).

QUESTION 13
A network administrator is notified that a user cannot access resources on the network. The network administrator checks the physical connections to the workstation labeled User 3 and sees the Ethernet is properly connected. However, the network interface's indicator lights are not blinking on either the computer or the switch. Which of the following Is the most likely cause?

A. The switch failed.
B. The default gateway is wrong.
C. The port Is shut down.
D. The VLAN assignment is incorrect.

Correct Answer: C
Section:
Explanation:
When a network interface's indicator lights are not blinking on either the computer or the switch, it suggests a physical layer issue. Here is the detailed reasoning:
Ethernet Properly Connected: The Ethernet cable is correctly connected, eliminating issues related to a loose or faulty cable.
No Indicator Lights: The absence of blinking indicator lights on both the computer and the switch typically points to the port being administratively shut down.
Switch Port Shut Down: In networking, a switch port can be administratively shut down, disabling it from passing any traffic. This state is configured by network administrators and can be verified and changed using the command-line interface (CLI) of the switch.
Command to Check and Enable Port:
bash
Copy code
Switch> enable
Switch# configure terminal
Switch(config)# interface [interface id]
Switch(config-if)# no shutdown
The command no shutdown re-enables the interface if it was previously disabled. This will restore the link and the indicator lights should start blinking, showing activity.

QUESTION 14
An administrator is setting up an SNMP server for use in the enterprise network and needs to create device IDs within a MIB. Which of the following describes the function of a MIB?

A. DHCP relay device
B. Policy enforcement point
C. Definition file for event translation
D. Network access controller

Correct Answer: C
Section:
Explanation:

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MIB (Management Information Base): A MIB is a database used for managing the entities in a communication network. The MIB is used by Simple Network Management Protocol (SNMP) to translate events into a readable format, enabling network administrators to manage and monitor network devices effectively.
Function of MIB: MIBs contain definitions and information about all objects that can be managed on a network using SNMP. These objects are defined using a hierarchical namespace containing object identifiers (OIDs).

QUESTION 15
Which of the following best explains the role of confidentiality with regard to data at rest?

A. Data can be accessed by anyone on the administrative network.
B. Data can be accessed remotely with proper training.
C. Data can be accessed after privileged access Is granted.
D. Data can be accessed after verifying the hash.

Correct Answer: C
Section:
Explanation:
Confidentiality with Data at Rest: Confidentiality is a core principle of data security, ensuring that data stored (at rest) is only accessible to authorized individuals. This protection is achieved through mechanisms such as encryption, access controls, and permissions.
Privileged Access: The statement 'Data can be accessed after privileged access is granted' aligns with the confidentiality principle, as it restricts data access to users who have been granted specific permissions or roles. Only those with the appropriate credentials or permissions can access the data.
Incorrect Options:
A . 'Data can be accessed by anyone on the administrative network.' This violates the principle of confidentiality by allowing unrestricted access.
B . 'Data can be accessed remotely with proper training.' This focuses on remote access rather than restricting access based on privileges.
D . 'Data can be accessed after verifying the hash.' This option relates more to data integrity rather than confidentiality.

QUESTION 16
A network engineer performed a migration to a new mail server. The engineer changed the MX record, verified the change was accurate, and confirmed the new mail server was reachable via the IP address in the A record. However, users are not receiving email. Which of the following should the engineer have done to prevent the issue from occurring?

A. Change the email client configuration to match the MX record.
B. Reduce the TTL record prior to the MX record change.
C. Perform a DNS zone transfer prior to the MX record change.
D. Update the NS record to reflect the IP address change.

Correct Answer: B
Section:
Explanation:
Understanding TTL (Time to Live):
TTL is a value in a DNS record that tells how long that record should be cached by DNS servers and clients. A higher TTL value means that the record will be cached longer, reducing the load on the DNS server but delaying the propagation of changes.
Impact of TTL on DNS Changes:
When an MX record change is made, it may take time for the change to propagate across all DNS servers due to the TTL setting. If the TTL is high, old DNS information might still be cached, leading to email being directed to the old server.
Best Practice Before Making DNS Changes:
To ensure that changes to DNS records propagate quickly, it is recommended to reduce the TTL value to a lower value (such as 300 seconds or 5 minutes) well in advance of making the changes. This ensures that any cached records will expire quickly, and the new records will be used sooner.
Verification of DNS Changes:
After reducing the TTL and making the change to the MX record, it is important to verify the propagation using tools like dig or nslookup.
Comparison with Other Options:
Change the email client configuration to match the MX record: Email clients generally do not need to match the MX record directly; they usually connect to a specific mail server specified in their settings.

Perform a DNS zone transfer prior to the MX record change: DNS zone transfers are used to replicate DNS records between DNS servers, but they are not related to the propagation of individual record changes.
Update the NS record to reflect the IP address change: NS records specify the DNS servers for a domain and are not related to MX record changes.
CompTIA Network+ study materials and DNS best practices.

QUESTION 17
Which of the following IP transmission types encrypts all of the transmitted data?

A. ESP
B. AH
C. GRE
D. UDP
E. TC P

Correct Answer: A
Section:
Explanation:
Definition of ESP (Encapsulating Security Payload):
ESP is a part of the IPsec protocol suite used to provide confidentiality, integrity, and authenticity of data. ESP encrypts the payload and optional ESP trailer, providing data confidentiality.
ESP Functionality:
ESP can encrypt the entire IP packet, ensuring that the data within the packet is secure from interception or eavesdropping. It also provides options for data integrity and authentication.
ESP operates in two modes: transport mode (encrypts only the payload of the IP packet) and tunnel mode (encrypts the entire IP packet).
Comparison with Other Protocols:
AH (Authentication Header): Provides data integrity and authentication but does not encrypt the payload.
GRE (Generic Routing Encapsulation): A tunneling protocol that does not provide encryption.
UDP (User Datagram Protocol) and TCP (Transmission Control Protocol): These are transport layer protocols that do not inherently provide encryption. Encryption must be provided by additional protocols like TLS/SSL.
Use Cases:
ESP is widely used in VPNs (Virtual Private Networks) to ensure secure communication over untrusted networks like the internet.
CompTIA Network+ study materials on IPsec and encryption.

QUESTION 18
A network administrator notices interference with industrial equipment in the 2.4GHz range. Which of the following technologies would most likely mitigate this issue? (Select two).

A. Mesh network
B. 5GHz frequency
C. Omnidirectional antenna
D. Non-overlapping channel
E. Captive portal
F. Ad hoc network

Correct Answer: B
Section:
Explanation:
Understanding 2.4GHz Interference:
The 2.4GHz frequency range is commonly used by many devices, including Wi-Fi, Bluetooth, and various industrial equipment. This can lead to interference and degraded performance.
Mitigation Strategies:
5GHz Frequency:
The 5GHz frequency band offers more channels and less interference compared to the 2.4GHz band. Devices operating on 5GHz are less likely to encounter interference from other devices, including industrial equipment.
Non-overlapping Channels:

In the 2.4GHz band, using non-overlapping channels (such as channels 1, 6, and 11) can help reduce interference. Non-overlapping channels do not interfere with each other, providing clearer communication paths for Wi-Fi signals.
Why Other Options are Less Effective:
Mesh Network: While useful for extending network coverage, a mesh network does not inherently address interference issues.
Omnidirectional Antenna: This type of antenna broadcasts signals in all directions but does not mitigate interference.
Captive Portal: A web page that users must view and interact with before accessing a network, unrelated to frequency interference.
Ad Hoc Network: A decentralized wireless network that does not address interference issues directly.
Implementation:
Switch Wi-Fi devices to the 5GHz band if supported by the network infrastructure and client devices.
Configure Wi-Fi access points to use non-overlapping channels within the 2.4GHz band to minimize interference.
CompTIA Network+ study materials on wireless networking and interference mitigation.

QUESTION 19
Which of the following disaster recovery metrics is used to describe the amount of data that is lost since the last backup?

A. MTTR
B. RTO
C. RPO
D. MTBF

Correct Answer: C
Section:
Explanation:
Definition of RPO:
Recovery Point Objective (RPO) is a disaster recovery metric that describes the maximum acceptable amount of data loss measured in time. It indicates the point in time to which data must be recovered to resume normal operations after a disaster.
For example, if the RPO is set to 24 hours, then the business could tolerate losing up to 24 hours' worth of data in the event of a disruption.
Why RPO is Important:
RPO is critical for determining backup frequency and helps businesses decide how often they need to back up their data. A lower RPO means more frequent backups and less potential data loss.
Comparison with Other Metrics:
MTTR (Mean Time to Repair): Refers to the average time required to repair a system or component and return it to normal operation.
RTO (Recovery Time Objective): The maximum acceptable length of time that a computer, system, network, or application can be down after a failure or disaster occurs.
MTBF (Mean Time Between Failures): The predicted elapsed time between inherent failures of a system during operation.
How RPO is Used in Disaster Recovery:
Organizations establish RPOs to ensure that they can recover data within a timeframe that is acceptable to business operations. This involves creating a backup plan that meets the RPO requirements.
CompTIA Network+ study materials and certification guides.

QUESTION 20
Which of the following can support a jumbo frame?

A. Access point
B. Bridge
C. Hub
D. Switch

Correct Answer: D
Section:
Explanation:
Definition of Jumbo Frames:

Jumbo frames are Ethernet frames with more than 1500 bytes of payload, typically up to 9000 bytes. They are used to improve network performance by reducing the overhead caused by smaller frames.
Why Switches Support Jumbo Frames:
Switches are network devices designed to manage data packets and can be configured to support jumbo frames. This capability enhances throughput and efficiency, particularly in high-performance networks and data centers.
Incompatibility of Other Devices:
Access Point: Primarily handles wireless communications and does not typically support jumbo frames.
Bridge: Connects different network segments but usually operates at standard Ethernet frame sizes.
Hub: A simple network device that transmits packets to all ports without distinguishing between devices, incapable of handling jumbo frames.
Practical Application:
Enabling jumbo frames on switches helps in environments where large data transfers are common, such as in storage area networks (SANs) or large-scale virtualized environments.
CompTIA Network+ course materials and networking hardware documentation.

QUESTION 21
Which of the following is created to illustrate the effectiveness of wireless networking coverage in a building?

A. Logical diagram
B. Layer 3 network diagram
C. Service-level agreement
D. Heat map

Correct Answer: D
Section:
Explanation:
Definition of Heat Maps:
A heat map is a graphical representation of data where individual values are represented by colors. In the context of wireless networking, a heat map shows the wireless signal strength in different areas of a building.
Purpose of a Heat Map:
Heat maps are used to illustrate the effectiveness of wireless networking coverage, identify dead zones, and optimize the placement of access points (APs) to ensure adequate coverage and performance.
Comparison with Other Options:
Logical Diagram: Represents the logical connections and relationships within the network.
Layer 3 Network Diagram: Focuses on the routing and IP addressing within the network.
Service-Level Agreement (SLA): A contract that specifies the expected service levels between a service provider and a customer.
Creation and Use:
Heat maps are created using specialized software or tools that measure wireless signal strength throughout the building. The data collected is then used to generate a visual map, guiding network administrators in optimizing wireless coverage.
CompTIA Network+ certification materials and wireless network planning guides.

QUESTION 22
A user is unable to navigate to a website because the provided URL is not resolving to the correct IP address. Other users are able to navigate to the intended website without issue. Which of the following is most likely causing this issue?

A. Hosts file
B. Self-signed certificate
C. Nameserver record
D. IP helper ANS

Correct Answer: A
Section:
Explanation:
Role of the Hosts File:

The hosts file is a local file on a computer that maps hostnames to IP addresses. It can be used to override DNS resolution by providing a static mapping of a hostname to an IP address.
Common Issues with the Hosts File:
If an incorrect IP address is mapped to a hostname in the hosts file, it can cause the computer to resolve the hostname to the wrong IP address. This can lead to navigation issues for specific websites while other users, relying on DNS, do not face the same problem.
Why Other Options are Less Likely:
Self-signed certificate: Relates to SSL/TLS and would cause a security warning, not a navigation failure.
Nameserver record: Affects all users, not just one.
IP helper: Used to forward DHCP requests and is unrelated to DNS resolution issues.
Troubleshooting Steps:
Check the hosts file on the affected user's computer (C:\Windows\System32\drivers\etc\hosts on Windows or /etc/hosts on Unix/Linux).
Look for entries that map the problematic hostname to an incorrect IP address and correct or remove them.
CompTIA Network+ study materials and system administration documentation.

QUESTION 23
An IT manager needs to connect ten sites in a mesh network. Each needs to be secured with reduced provisioning time. Which of the following technologies will best meet this requirement?

A. SD-WAN
B. VXLAN
C. VPN
D. NFV

Correct Answer: A
Section:
Explanation:
Definition of SD-WAN:
Software-Defined Wide Area Network (SD-WAN) is a technology that simplifies the management and operation of a WAN by decoupling the networking hardware from its control mechanism. It allows for centralized management and enhanced security.
Benefits of SD-WAN:
Reduced Provisioning Time: SD-WAN enables quick and easy deployment of new sites with centralized control and automation.
Security: Incorporates advanced security features such as encryption, secure tunneling, and integrated firewalls.
Scalability: Easily scales to accommodate additional sites and bandwidth requirements.
Comparison with Other Technologies:
VXLAN (Virtual Extensible LAN): Primarily used for network virtualization within data centers.
VPN (Virtual Private Network): Provides secure connections but does not offer the centralized management and provisioning efficiency of SD-WAN.
NFV (Network Functions Virtualization): Virtualizes network services but does not specifically address WAN management and provisioning.
Implementation:
SD-WAN solutions are implemented by deploying edge devices at each site and connecting them to a central controller. This allows for dynamic routing, traffic management, and security policy enforcement.
CompTIA Network+ course materials and networking solution guides.

QUESTION 24
After installing a series of Cat 8 keystones, a data center architect notices higher than normal interference during tests. Which of the following steps should the architect take to troubleshoot the issue?

A. Check to see if the end connections were wrapped in copper tape before terminating.
B. Use passthrough modular crimping plugs instead of traditional crimping plugs.
C. Connect the RX/TX wires to different pins.
D. Run a speed test on a device that can only achieve 100Mbps speeds.

Correct Answer: A
Section:

Explanation:
Importance of Proper Termination:
Cat 8 cabling requires precise termination practices to ensure signal integrity and reduce interference. One common requirement is to wrap the end connections in copper tape to maintain shielding and reduce electromagnetic interference (EMI).
Interference Troubleshooting:
Interference in high-frequency cables like Cat 8 can be caused by improper shielding or grounding. Checking the end connections for proper wrapping in copper tape is a crucial step.
Why Other Options are Less Likely:
Passthrough modular crimping plugs: Not specifically related to interference issues and are typically used for ease of cable assembly.
Connecting RX/TX wires to different pins: Would likely result in no connection or incorrect data transmission rather than interference.
Running a speed test on a device that can only achieve 100Mbps speeds: This would not diagnose interference and would not provide relevant information for Cat 8 cabling rated for higher speeds.
Corrective Actions:
Verify that all end connections are properly wrapped with copper tape before termination.
Ensure that the shielding is continuous and properly grounded throughout the installation.
Retest the cabling for interference after making corrections.
CompTIA Network+ study materials and structured cabling installation guides.

QUESTION 25
Which of the following most likely determines the size of a rack for installation? (Select two).

A. KVM size
B. Switch depth
C. Hard drive size
D. Cooling fan speed
E. Outlet amperage
F. Server height

Correct Answer: B
Section:
Explanation:
Understanding Rack Size Determination:
The size of a rack for installation is determined by the dimensions of the equipment to be housed in it, primarily focusing on the depth and height of the devices.
Switch Depth:
Depth of Equipment: The depth of network switches and other rack-mounted devices directly influences the depth of the rack. If the equipment is deeper, a deeper rack is required to accommodate it.
Industry Standards: Most racks come in standard depths, but it is essential to match the depth of the rack to the deepest piece of equipment to ensure proper fit and airflow.
Server Height:
Height of Equipment: The height of servers and other devices is measured in rack units (U), where 1U equals 1.75 inches. The total height of all equipment determines the overall height requirement of the rack.
Rack Units: A rack's height is typically described in terms of the number of rack units it can accommodate, such as 42U, 48U, etc.
Why Other Options are Less Relevant:
KVM Size: While important for management, KVM (Keyboard, Video, Mouse) switches do not typically determine rack size.
Hard Drive Size: Individual hard drives are installed within servers or storage devices, not directly influencing rack dimensions.
Cooling Fan Speed: Fan speed affects cooling but not the physical size of the rack.
Outlet Amperage: Power requirements do not determine rack dimensions but rather the electrical infrastructure supporting the rack.
CompTIA Network+ study materials on rack installation and equipment sizing.

QUESTION 26
A VoIP phone is plugged in to a port but cannot receive calls. Which of the following needs to be done on the port to address the issue?

A. Trunk all VLANs on the port.
B. Configure the native VLAN.

C. Tag the traffic to voice VLAN.
D. Disable VLANs.

Correct Answer: C
Section:
Explanation:
Understanding VoIP and VLANs:
VoIP (Voice over IP) phones often use VLANs (Virtual Local Area Networks) to separate voice traffic from data traffic for improved performance and security.
Tagging Traffic to Voice VLAN:
Voice VLAN Configuration: The port on the switch needs to be configured to tag traffic for the specific voice VLAN. This ensures that voice packets are prioritized and handled correctly.
VLAN Tagging: VLAN tagging allows the switch to identify and separate voice traffic from other types of traffic on the network, reducing latency and jitter for VoIP communications.
Comparison with Other Options:
Trunk all VLANs on the port: Trunking all VLANs is typically used for links between switches, not for individual device ports.
Configure the native VLAN: The native VLAN is for untagged traffic and does not address the need for separating and prioritizing voice traffic.
Disable VLANs: Disabling VLANs would mix voice and data traffic, leading to potential performance issues and lack of traffic separation.
Implementation:
Configure the switch port connected to the VoIP phone to tag the traffic for the designated voice VLAN, ensuring proper network segmentation and quality of service.
CompTIA Network+ study materials on VLAN configuration and VoIP implementation.

QUESTION 27
As part of an attack, a threat actor purposefully overflows the content-addressable memory (CAM) table on a switch. Which of the following types of attacks is this scenario an example of?

A. ARP spoofing
B. Evil twin
C. MAC flooding
D. DNS poisoning

Correct Answer: C
Section:
Explanation:
Definition of MAC Flooding:
MAC flooding is an attack where a malicious actor sends numerous fake MAC addresses to a switch, overwhelming its CAM table. The CAM table stores MAC addresses and their associated ports for efficient traffic forwarding.
Impact of MAC Flooding:
CAM Table Overflow: When the CAM table is full, the switch cannot learn new MAC addresses and is forced to broadcast traffic to all ports, leading to a degraded network performance and potential data interception.
Switch Behavior: The switch operates in a fail-open mode, treating the network as a hub, which can be exploited for eavesdropping on traffic.
Comparison with Other Attacks:
ARP Spoofing: Involves sending false ARP (Address Resolution Protocol) messages to associate the attacker's MAC address with the IP address of another device.
Evil Twin: Involves creating a rogue wireless access point that mimics a legitimate one to intercept data.
DNS Poisoning: Involves corrupting the DNS cache with false information to redirect traffic to malicious sites.
Preventive Measures:
Port Security: Configure port security on switches to limit the number of MAC addresses per port, preventing CAM table overflow.
Network Segmentation: Use VLANs to segment network traffic and limit the impact of such attacks.
CompTIA Network+ study materials on network security threats and mitigation techniques.

QUESTION 28
A network manager wants to implement a SIEM system to correlate system events. Which of the following protocols should the network manager verify?

A. NTP
B. DNS

C. LDAP
D. DHCP

Correct Answer: A
Section:
Explanation:
Role of NTP (Network Time Protocol):
NTP is used to synchronize the clocks of network devices to a reference time source. Accurate time synchronization is critical for correlating events and logs from different systems.
Importance for SIEM Systems:
Event Correlation: SIEM (Security Information and Event Management) systems collect and analyze log data from various sources. Accurate timestamps are essential for correlating events across multiple systems.
Time Consistency: Without synchronized time, it is challenging to piece together the sequence of events during an incident, making forensic analysis difficult.
Comparison with Other Protocols:
DNS (Domain Name System): Translates domain names to IP addresses but is not related to time synchronization.
LDAP (Lightweight Directory Access Protocol): Used for directory services, such as user authentication and authorization.
DHCP (Dynamic Host Configuration Protocol): Assigns IP addresses to devices on a network but does not handle time synchronization.
Implementation:
Ensure that all network devices, servers, and endpoints are synchronized using NTP. This can be achieved by configuring devices to use an NTP server, which could be a local server or an external time source.
CompTIA Network+ study materials on network protocols and SIEM systems.

QUESTION 29
A network engineer is designing a secure communication link between two sites. The entire data stream needs to remain confidential. Which of the following will achieve this goal?

A. GRE
B. IKE
C. ESP
D. AH

Correct Answer: C
Section:
Explanation:
Definition of ESP (Encapsulating Security Payload):
ESP is a part of the IPsec protocol suite designed to provide confidentiality, integrity, and authenticity of data by encrypting the payload and optional ESP trailer.
Ensuring Confidentiality:
Encryption: ESP encrypts the payload, ensuring that the data remains confidential during transmission. Only authorized parties with the correct decryption keys can access the data.
Modes of Operation: ESP can operate in transport mode (encrypts only the payload) or tunnel mode (encrypts the entire IP packet), both providing strong encryption to secure data between sites.
Comparison with Other Protocols:
GRE (Generic Routing Encapsulation): A tunneling protocol that does not provide encryption or security features.
IKE (Internet Key Exchange): A protocol used to set up a secure, authenticated communications channel, but it does not encrypt the data itself.
AH (Authentication Header): Provides integrity and authentication for IP packets but does not encrypt the payload.
Implementation:
Use ESP as part of an IPsec VPN configuration to encrypt and secure communication between two sites. This involves setting up IPsec policies and ensuring both endpoints are configured to use ESP for data encryption.
CompTIA Network+ study materials on IPsec and secure communication protocols.

QUESTION 30
Which of the following routing protocols uses an autonomous system number?

A. IS-IS
B. EIGRP

C. OSPF
D. BGP

Correct Answer: D
Section:
Explanation:
BGP (Border Gateway Protocol) uses an Autonomous System (AS) number for its operations. An AS is a collection of IP networks and routers under the control of a single organization that presents a common routing policy to the Internet. BGP is used to exchange routing information between different ASes on the Internet, making it the only protocol among the listed options that uses an AS number.
Reference: CompTIA Network+ study materials and RFC 4271.

QUESTION 31
Which of the following is the most secure way to provide site-to-site connectivity?

A. VXLAN
B. IKE
C. GRE
D. IPsec

Correct Answer: D
Section:
Explanation:
IPsec (Internet Protocol Security) is the most secure way to provide site-to-site connectivity. It provides robust security services, such as data integrity, authentication, and encryption, ensuring that data sent across the network is protected from interception and tampering. Unlike other options, IPsec operates at the network layer and can secure all traffic that crosses the IP network, making it the most comprehensive and secure choice for site-to-site VPNs.
Reference: CompTIA Network+ study materials and NIST Special Publication 800-77.

Vdumps

QUESTION 32
A network administrator needs to connect two routers in a point-to-point configuration and conserve IP space. Which of the following subnets should the administrator use?

A. 724
B. /26
C. /28
D. /30

Correct Answer: D
Section:
Explanation:
Using a /30 subnet mask is the most efficient way to conserve IP space for a point-to-point connection between two routers. A /30 subnet provides four IP addresses, two of which can be assigned to the router interfaces, one for the network address, and one for the broadcast address. This makes it ideal for point-to-point links where only two usable IP addresses are needed.
Reference: CompTIA Network+ study materials and subnetting principles.

QUESTION 33
To reduce costs and increase mobility, a Chief Technology Officer (CTO) wants to adopt cloud services for the organization and its affiliates. To reduce the impact for users, the CTO wants key services to run from the on-site data center and enterprise services to run in the cloud. Which of the following deployment models is the best choice for the organization?

A. Public
B. Hybrid
C. SaaS

D. Private

Correct Answer: B
Section:
Explanation:
A hybrid cloud deployment model is the best choice for the CTO's requirements. It allows the organization to run key services from the on-site data center while leveraging the cloud for enterprise services. This approach provides flexibility, scalability, and cost savings, while also minimizing disruptions to users by keeping critical services local. The hybrid model integrates both private and public cloud environments, offering the benefits of both.
Reference: CompTIA Network+ study materials and cloud computing principles.

QUESTION 34
A technician is troubleshooting a user's laptop that is unable to connect to a corporate server. The technician thinks the issue pertains to routing. Which of the following commands should the technician use to identify the issue?

A. tcpdump
B. dig
C. tracert
D. arp

Correct Answer: C
Section:
Explanation:
The tracert (Traceroute) command is used to determine the path packets take from the source to the destination. It helps in identifying routing issues by showing each hop the packets pass through, along with the time taken for each hop. This command can pinpoint where the connection is failing or experiencing delays, making it an essential tool for troubleshooting routing issues.
Reference: CompTIA Network+ study materials and common network troubleshooting commands.

QUESTION 35
Which of the following fiber connector types is the most likely to be used on a network interface card?

A. LC
B. SC
C. ST
D. MPO

Correct Answer: A
Section:
Explanation:
Definition of Fiber Connector Types:
LC (Lucent Connector): A small form-factor fiber optic connector with a push-pull latching mechanism, commonly used for high-density applications.
SC (Subscriber Connector or Standard Connector): A larger form-factor connector with a push-pull latching mechanism, often used in datacom and telecom applications.
ST (Straight Tip): A bayonet-style connector, typically used in multimode fiber optic networks.
MPO (Multi-fiber Push On): A connector designed to support multiple fibers (typically 12 or 24 fibers), used in high-density cabling environments.
Common Usage:
LC Connectors: Due to their small size, LC connectors are widely used in network interface cards (NICs) and high-density environments such as data centers. They allow for more connections in a smaller space compared to SC and ST connectors.
SC and ST Connectors: These are larger and more commonly used in patch panels and older fiber installations but are less suitable for high-density applications.
MPO Connectors: Primarily used for trunk cables in data centers and high-density applications but not typically on individual network interface cards.
Selection Criteria:
The small form-factor and high-density capabilities of LC connectors make them the preferred choice for network interface cards, where space and connection density are critical considerations.

CompTIA Network+ study materials on fiber optics and connector types.

QUESTION 36
A network engineer receives a vendor alert regarding a vulnerability in a router CPU. Which of the following should the engineer do to resolve the issue?

A. Update the firmware.
B. Replace the system board.
C. Patch the OS.
D. Isolate the system.

Correct Answer: A
Section:
Explanation:
Understanding the Vulnerability:
Vulnerabilities in the router CPU can be exploited to cause performance degradation, unauthorized access, or other security issues.
Firmware Update:
Firmware Role: The firmware is low-level software that controls the hardware of a device. Updating the firmware can address vulnerabilities by providing patches and enhancements from the manufacturer.
Procedure: Download the latest firmware from the vendor's website, follow the manufacturer's instructions to apply the update, and verify that the update resolves the vulnerability.
Comparison with Other Options:
Replace the System Board: This is a costly and often unnecessary step if the issue can be resolved with a firmware update.
Patch the OS: Patching the OS is relevant for devices with a full operating system but not directly applicable to addressing a CPU vulnerability on a router.
Isolate the System: Temporarily isolating the system can mitigate immediate risk but does not resolve the underlying vulnerability.
Best Practice:
Regularly check for and apply firmware updates to ensure that network devices are protected against known vulnerabilities.
CompTIA Network+ study materials on network security and device management.

QUESTION 37
A virtual machine has the following configuration:
* IPv4 address: 169.254.10.10
* Subnet mask: 255.255.0.0
The virtual machine can reach colocated systems but cannot reach external addresses on the Internet. Which of the following Is most likely the root cause?

A. The subnet mask is incorrect.
B. The DHCP server is offline.
C. The IP address is an RFC1918 private address.
D. The DNS server is unreachable.

Correct Answer: B
Section:
Explanation:
Understanding the 169.254.x.x Address:
An IPv4 address in the range of 169.254.x.x is an Automatic Private IP Addressing (APIPA) address, assigned when a DHCP server is unavailable.
DHCP Server Offline:
APIPA Assignment: When a device cannot obtain an IP address from a DHCP server, it assigns itself an APIPA address to enable local network communication. This allows communication with other devices on the same local subnet but not with external networks.
Resolution: Ensure the DHCP server is operational. Check for connectivity issues between the virtual machine and the DHCP server, and verify the DHCP server settings.
Comparison with Other Options:
The subnet mask is incorrect: The subnet mask 255.255.0.0 is appropriate for the 169.254.x.x range and does not prevent external access by itself.
The IP address is an RFC1918 private address: RFC1918 addresses are private IP ranges (10.x.x.x, 172.16.x.x-172.31.x.x, 192.168.x.x) but 169.254.x.x is not one of them.

The DNS server is unreachable: While this could affect name resolution, it would not prevent the assignment of a non-APIPA address or local network communication.
Troubleshooting Steps:
Verify the DHCP server's status and connectivity.
Restart the DHCP service if necessary.
Renew the IP lease on the virtual machine using commands such as ipconfig /renew (Windows) or dhclient (Linux).
CompTIA Network+ study materials on IP addressing and DHCP troubleshooting.

QUESTION 38
A network technician is troubleshooting a web application's poor performance. The office has two internet links that share the traffic load. Which of the following tools should the technician use to determine which link is being used for the web application?

A. netstat
B. nslookup
C. ping
D. tracert

Correct Answer: D
Section:
Explanation:
Understanding Tracert:
Traceroute Tool: tracert (Windows) or traceroute (Linux) is a network diagnostic tool used to trace the path that packets take from a source to a destination. It lists all the intermediate routers the packets traverse.
Determining Traffic Path:
Path Identification: By running tracert to the web application's destination IP address, the technician can identify which route the traffic is taking and thereby determine which internet link is being used.
Load Balancing Insight: If the office uses load balancing for its internet links, tracert can help verify which link is currently handling the traffic for the web application.
Comparison with Other Tools:
netstat: Displays network connections, routing tables, interface statistics, and more, but does not trace the path of packets.
nslookup: Used for querying DNS to obtain domain name or IP address mapping, not for tracing packet routes.
ping: Tests connectivity and measures round-trip time but does not provide path information.
Implementation:
Open a command prompt or terminal.
Execute tracert [destination IP] to trace the route.
Analyze the output to determine the path and the link being used.
CompTIA Network+ study materials on network troubleshooting and diagnostic tools.

QUESTION 39
A network administrator configured a router interface as 10.0.0.95 255.255.255.240. The administrator discovers that the router is not routing packets to a web server with IP 10.0.0.81/28. Which of the following is the best explanation?

A. The web server Is In a different subnet.
B. The router interface is a broadcast address.
C. The IP address space is a class A network.
D. The subnet is in a private address space.

Correct Answer: B
Section:
Explanation:
Understanding Subnetting:
The subnet mask 255.255.255.240 (or /28) indicates that each subnet has 16 IP addresses (14 usable addresses, 1 network address, and 1 broadcast address).
Calculating the Subnet Range:

Subnet Calculation: For the IP address 10.0.0.95 with a /28 subnet mask:
Network address: 10.0.0.80
Usable IP range: 10.0.0.81 to 10.0.0.94
Broadcast address: 10.0.0.95
Router Interface Configuration:
Broadcast Address Issue: The IP address 10.0.0.95 is the broadcast address for the subnet 10.0.0.80/28. Configuring a router interface with the broadcast address will cause routing issues as it is not a valid host address.
Comparison with Other Options:
The web server is in a different subnet: The web server (10.0.0.81) is within the same subnet range (10.0.0.80/28).
The IP address space is a class A network: While 10.0.0.0 is a Class A network, this does not explain the routing issue caused by the broadcast address.
The subnet is in a private address space: The private address space designation (RFC 1918) does not impact the routing issue related to the broadcast address configuration.
Resolution:
Reconfigure the router interface with a valid host IP address within the usable range, such as 10.0.0.94.
CompTIA Network+ study materials on subnetting and IP address configuration.

QUESTION 40
Which of the following does a full-tunnel VPN provide?

A. Lower bandwidth requirements
B. The ability to reset local computer passwords
C. Corporate Inspection of all network traffic
D. Access to blocked sites

Correct Answer: C
Section:
Explanation:
A full-tunnel VPN routes all of a user's network traffic through the corporate network. This means that the organization can inspect all network traffic for security and compliance purposes, as all data is tunneled through the VPN, allowing for comprehensive monitoring and inspection.
Reference: CompTIA Network+ study materials.

QUESTION 41
A customer is adding fiber connectivity between adjacent buildings. A technician terminates the multimode cable to the fiber patch panel. After the technician connects the fiber patch cable, the indicator light does not turn on. Which of the following should a technician try first to troubleshoot this issue?

A. Reverse the fibers.
B. Reterminate the fibers.
C. Verify the fiber size.
D. Examine the cable runs for visual faults.

Correct Answer: A
Section:
Explanation:
When working with fiber optic cables, one common issue is that the transmit (TX) and receive (RX) fibers might be reversed. The first step in troubleshooting should be to reverse the fibers at one end to ensure they are correctly aligned (TX to RX and RX to TX). This is a simple and quick step to rule out a common issue before moving on to more complex troubleshooting.
Reference: CompTIA Network+ study materials.

QUESTION 42
A network administrator needs to divide 192.168.1.0/24 into two equal halves. Which of the following subnet masks should the administrator use?

A. 255.255.0.0
B. 255.255.254.0
C. 255.255.255.0
D. 255.255.255.128

Correct Answer: D
Section:
Explanation:
Understanding Subnetting:
Original Network: 192.168.1.0/24 has a subnet mask of 255.255.255.0, which allows for 256 IP addresses (including network and broadcast addresses).
Objective: Divide this network into two equal subnets.
Calculating Subnet Mask:
New Subnet Mask: To divide 192.168.1.0/24 into two equal halves, we need to borrow one bit from the host portion of the address, changing the subnet mask to 255.255.255.128 (/25).
Subnet Breakdown:
First Subnet: 192.168.1.0/25 (192.168.1.0 - 192.168.1.127)
Second Subnet: 192.168.1.128/25 (192.168.1.128 - 192.168.1.255)
Verification:
Each subnet now has 128 IP addresses (126 usable IP addresses, excluding the network and broadcast addresses).
Comparison with Other Options:
255.255.0.0 (/16): Provides a much larger network, not dividing the original /24 network.
255.255.254.0 (/23): Also creates a larger subnet, encompassing more than the original /24 network.
255.255.255.0 (/24): Maintains the original subnet size, not dividing it.
CompTIA Network+ study materials on subnetting and IP addressing.

QUESTION 43
A network administrator needs to set up a multicast network for audio and video broadcasting. Which of the following networks would be the most appropriate for this application?

A. 172.16.0.0/24
B. 192.168.0.0/24
C. 224.0.0.0/24
D. 240.0.0.0/24

Correct Answer: C
Section:
Explanation:
Understanding Multicast:
Multicast IP Address Range: The multicast address range is from 224.0.0.0 to 239.255.255.255, designated for multicast traffic.
Multicast Applications:
Use Case: Multicast is used for one-to-many or many-to-many communication, suitable for applications like audio and video broadcasting where the same data is sent to multiple recipients simultaneously.
Appropriate Network Selection:
224.0.0.0/24 Network: This range is reserved for multicast addresses, making it the appropriate choice for setting up a multicast network.
Comparison with Other Options:
172.16.0.0/24: Part of the private IP address space, used for private networks, not designated for multicast.
192.168.0.0/24: Another private IP address range, also not for multicast.
240.0.0.0/24: Reserved for future use, not suitable for multicast.
CompTIA Network+ study materials on IP address ranges and multicast.

QUESTION 44
A research facility is expecting to see an exponential increase in global network traffic in the near future. The offices are equipped with 2.5Gbps fiber connections from the ISP, but the facility is currently only utilizing 1Gbps

connections. Which of the following would need to be configured in order to use the ISP's connection speed?

A. 802.1Q tagging
B. Network address translation
C. Port duplex
D. Link aggregation

Correct Answer: D
Section:
Explanation:
Understanding Link Aggregation:
Definition: Link aggregation combines multiple network connections into a single logical link to increase bandwidth and provide redundancy.
Usage in High-Bandwidth Scenarios:
Combining Links: By aggregating multiple 1Gbps connections, the facility can utilize the full 2.5Gbps bandwidth provided by the ISP.
Benefits: Enhanced throughput, load balancing, and redundancy, ensuring better utilization of available bandwidth.
Comparison with Other Options:
802.1Q Tagging: Used for VLAN tagging, which does not affect the physical bandwidth utilization.
Network Address Translation (NAT): Used for IP address translation, not related to link speed or bandwidth aggregation.
Port Duplex: Refers to the mode of communication (full or half duplex) on a port, not the aggregation of bandwidth.
Implementation:
Configure link aggregation (often referred to as LACP - Link Aggregation Control Protocol) on network devices to combine multiple physical links into one logical link.
CompTIA Network+ study materials on network configuration and link aggregation.

QUESTION 45
Which of the following is used to estimate the average life span of a device?

A. RTO
B. RPO
C. MTBF
D. MTTR

Correct Answer: C
Section:
Explanation:
Understanding MTBF:
Mean Time Between Failures (MTBF): A reliability metric that estimates the average time between successive failures of a device or system.
Calculation and Importance:
Calculation: MTBF is calculated as the total operational time divided by the number of failures during that period.
Usage: Used by manufacturers and engineers to predict the lifespan and reliability of a device, helping in maintenance planning and lifecycle management.
Comparison with Other Metrics:
RTO (Recovery Time Objective): The maximum acceptable time to restore a system after a failure.
RPO (Recovery Point Objective): The maximum acceptable amount of data loss measured in time.
MTTR (Mean Time to Repair): The average time required to repair a device or system and return it to operational status.
Application:
MTBF is crucial for planning maintenance schedules, spare parts inventory, and improving the overall reliability of systems.
CompTIA Network+ study materials on reliability and maintenance metrics.

QUESTION 46
A network administrator is implementing security zones for each department. Which of the following should the administrator use to accomplish this task?

A. ACLs
B. Port security
C. Content filtering
D. NAC

Correct Answer: A
Section:
Explanation:
Understanding ACLs:
Access Control Lists (ACLs): A set of rules used to control network traffic and restrict access to network resources by filtering packets based on IP addresses, protocols, or ports.
Implementing Security Zones:
Defining Zones: ACLs can be used to create security zones by applying specific rules to different departments, ensuring that only authorized traffic is allowed between these zones.
Control Traffic: ACLs control inbound and outbound traffic at network boundaries, enforcing security policies and preventing unauthorized access.
Comparison with Other Options:
Port Security: Limits the number of devices that can connect to a switch port, preventing MAC address flooding attacks, but not used for defining security zones.
Content Filtering: Blocks or allows access to specific content based on predefined policies, typically used for web filtering rather than network segmentation.
NAC (Network Access Control): Controls access to the network based on the security posture of devices but does not define security zones.
Implementation Steps:
Define ACL rules based on the requirements of each department.
Apply these rules to the appropriate network interfaces or firewall policies to segment the network into security zones.
CompTIA Network+ study materials on network security and access control methods.

QUESTION 47
A network engineer is now in charge of all SNMP management in the organization. The engineer must use a SNMP version that does not utilize plaintext data. Which of the following is the minimum version of SNMP that supports this requirement?

A. v1
B. v2c
C. v2u
D. v3

Correct Answer: D
Section:
Explanation:
SNMPv3 is the version of the Simple Network Management Protocol that introduces security enhancements, including message integrity, authentication, and encryption. Unlike previous versions (v1 and v2c), SNMPv3 supports encrypted communication, ensuring that data is not transmitted in plaintext. This provides confidentiality and protects against eavesdropping and unauthorized access.
Reference: CompTIA Network+ study materials.

QUESTION 48
After running a Cat 8 cable using passthrough plugs, an electrician notices that connected cables are experiencing a lot of cross talk. Which of the following troubleshooting steps should the electrician take first?

A. Inspect the connectors for any wires that are touching or exposed.
B. Restore default settings on the connected devices.
C. Terminate the connections again.
D. Check for radio frequency interference in the area.

Correct Answer: A

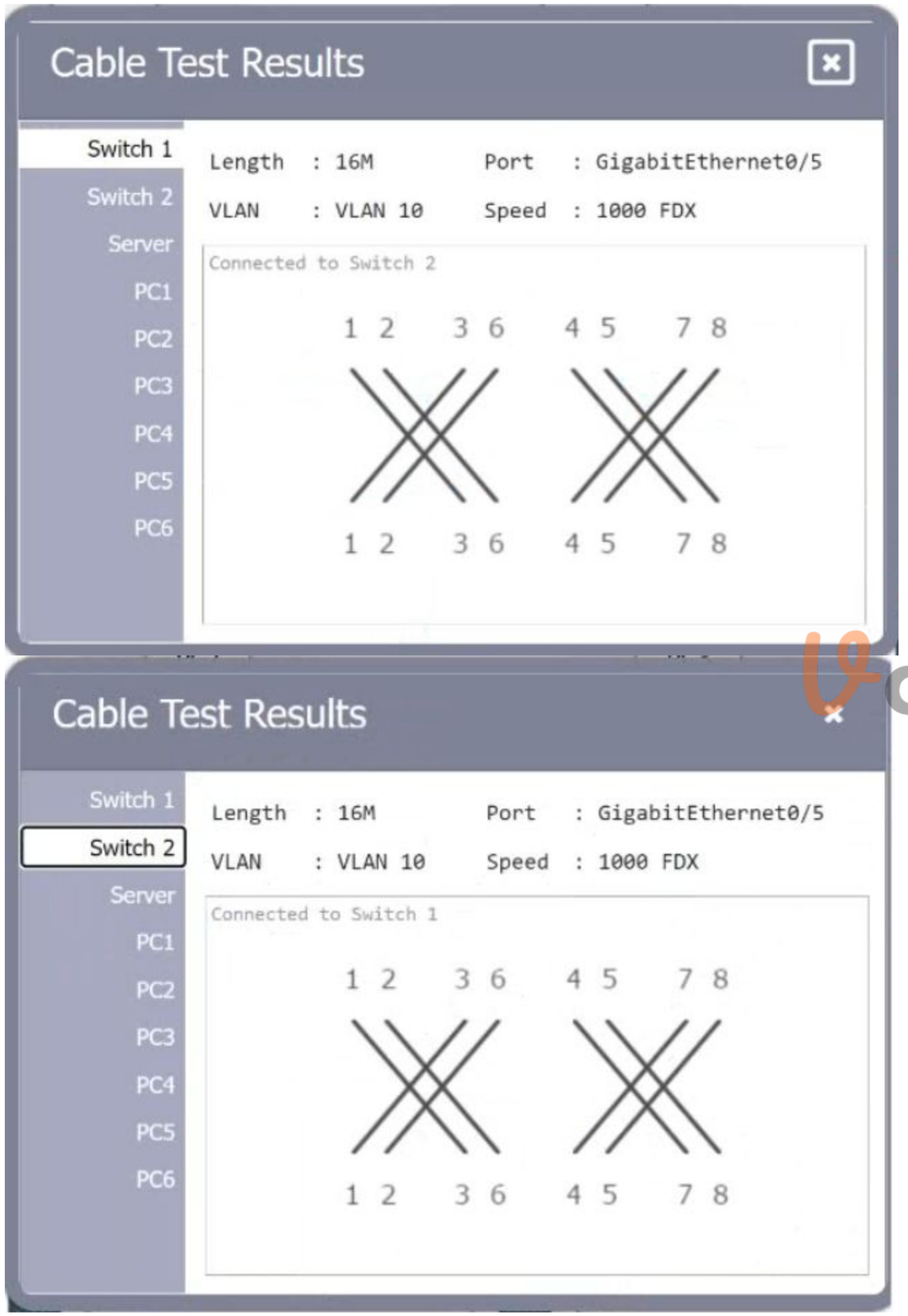
Section:
Explanation:
Cross talk can often be caused by improper termination of cables. The first step in troubleshooting should be to inspect the connectors for any wires that might be touching or exposed. Ensuring that all wires are correctly seated and that no conductors are exposed can help reduce or eliminate cross talk. This step should be taken before attempting to re-terminate the connections or check for other sources of interference.
Reference: CompTIA Network+ study materials.

QUESTION 49
A network architect needs to create a wireless field network to provide reliable service to public safety vehicles. Which of the following types of networks is the best solution?

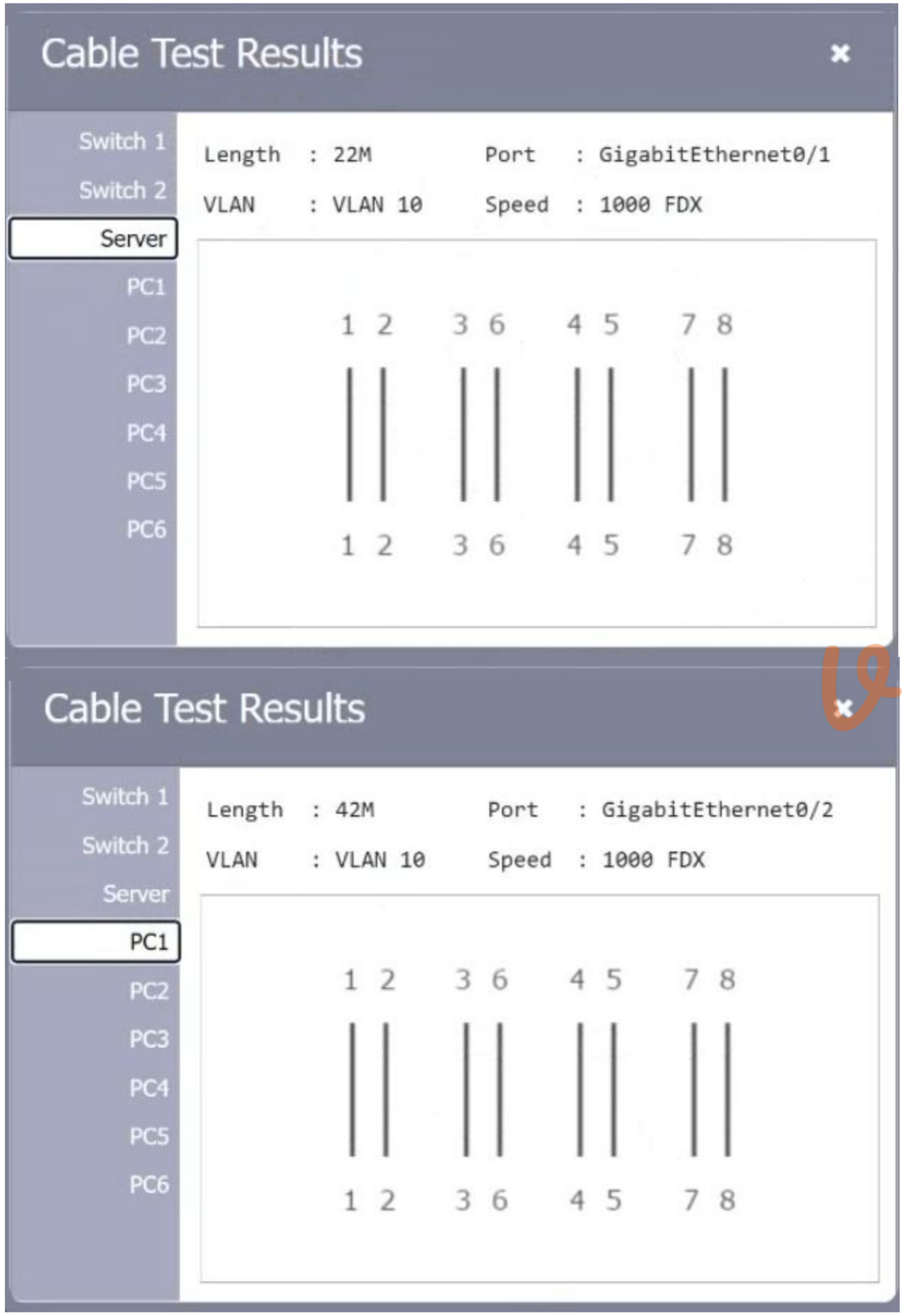
A. Mesh
B. Ad hoc
C. Point-to-point
D. Infrastructure

Correct Answer: A
Section:
Explanation:
A mesh network is the best solution for providing reliable wireless service to public safety vehicles. In a mesh network, each node (vehicle) can connect to multiple other nodes, providing multiple paths for data to travel. This enhances reliability and redundancy, ensuring continuous connectivity even if one or more nodes fail. Mesh networks are highly resilient and are well-suited for dynamic and mobile environments such as public safety operations.
Reference: CompTIA Network+ study materials.

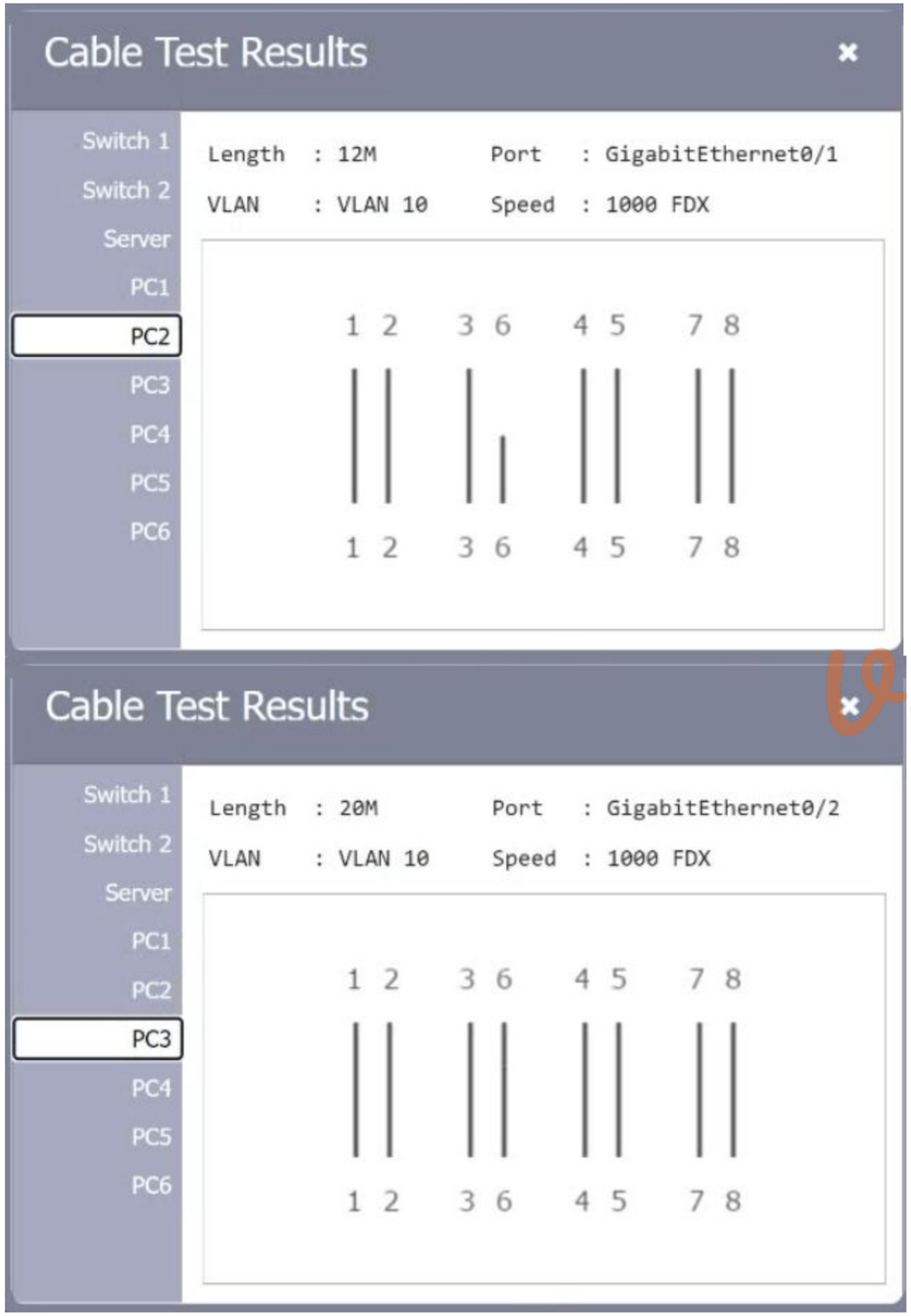
QUESTION 50
SIMULATION
A network technician needs to resolve some issues with a customer's SOHO network. The customer reports that some of the PCs are not connecting to the network, while others appear to be working as intended.
INSTRUCTIONS
Troubleshoot all the network components.
Review the cable test results first, then diagnose by clicking on the appropriate PC,
server, and Layer 2 switch.
Identify any components with a problem and recommend a solution to correct each problem.
If at any time you would like to bring back the initial state of the simulation, please click the Reset All button.


Cable Test Results
Switch 1
Switch 2
Server
PC1
PC2
PC3
PC4
PC5
PC6
Length : 16M
Port : GigabitEthernet0/5
VLAN : VLAN 10
Speed : 1000 FDX
Connected to Switch 2
1 2 3 6 4 5 7 8
1 2 3 6 4 5 7 8
Cable Test Results
Switch 1
Switch 2
Server
PC1
PC2
PC3
PC4
PC5
PC6
Length : 16M
Port : GigabitEthernet0/5
VLAN : VLAN 10
Speed : 1000 FDX
Connected to Switch 1
1 2 3 6 4 5 7 8
1 2 3 6 4 5 7 8

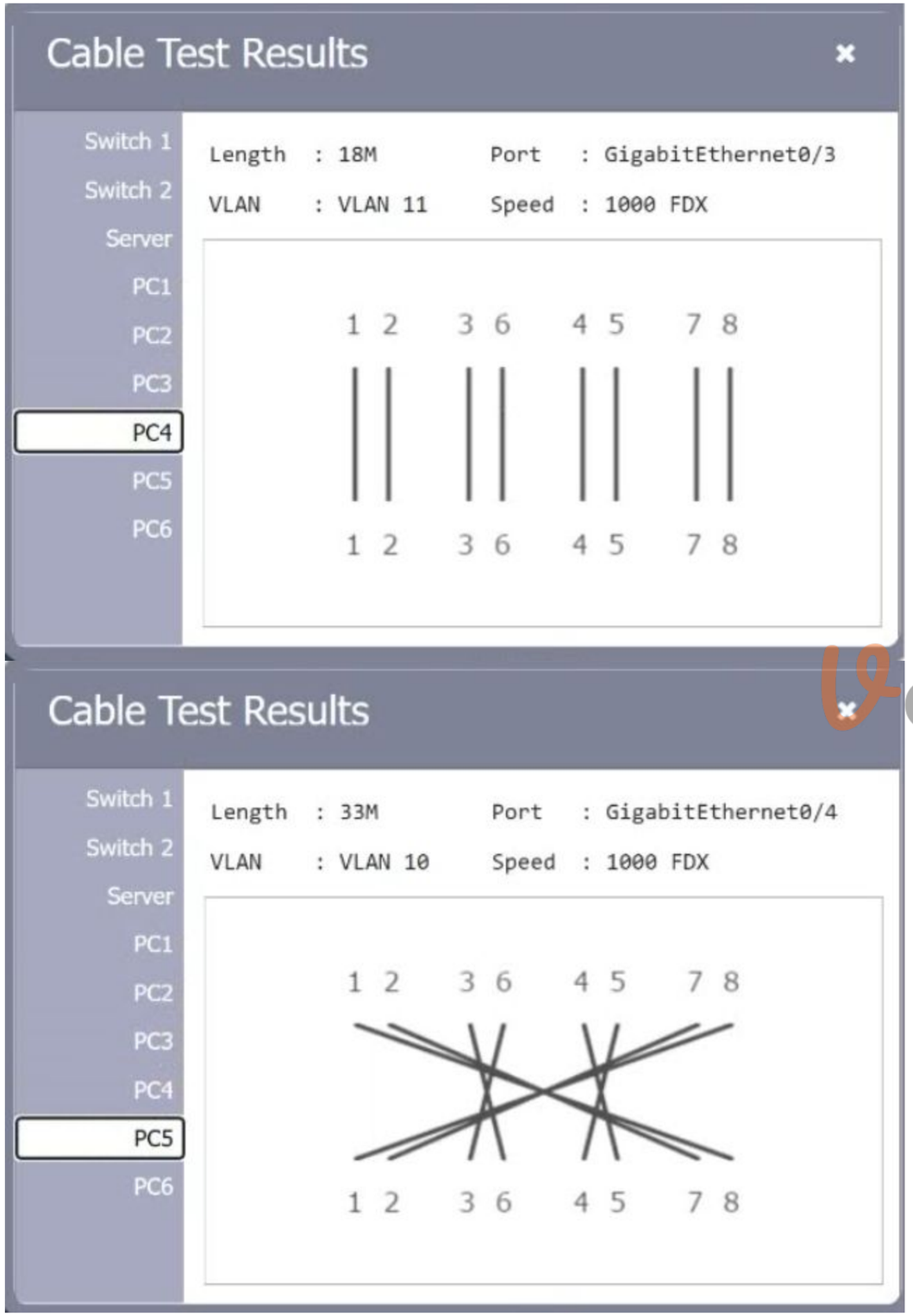
Vdumps


Cable Test Results
Switch 1
Switch 2
Server
PC1
PC2
PC3
PC4
PC5
PC6
Length : 22M
Port : GigabitEthernet0/1
VLAN : VLAN 10
Speed : 1000 FDX
1 2 3 6 4 5 7 8
1 2 3 6 4 5 7 8
Cable Test Results
Switch 1
Switch 2
Server
PC1
PC2
PC3
PC4
PC5
PC6
Length : 42M
Port : GigabitEthernet0/2
VLAN : VLAN 10
Speed : 1000 FDX
1 2 3 6 4 5 7 8
1 2 3 6 4 5 7 8

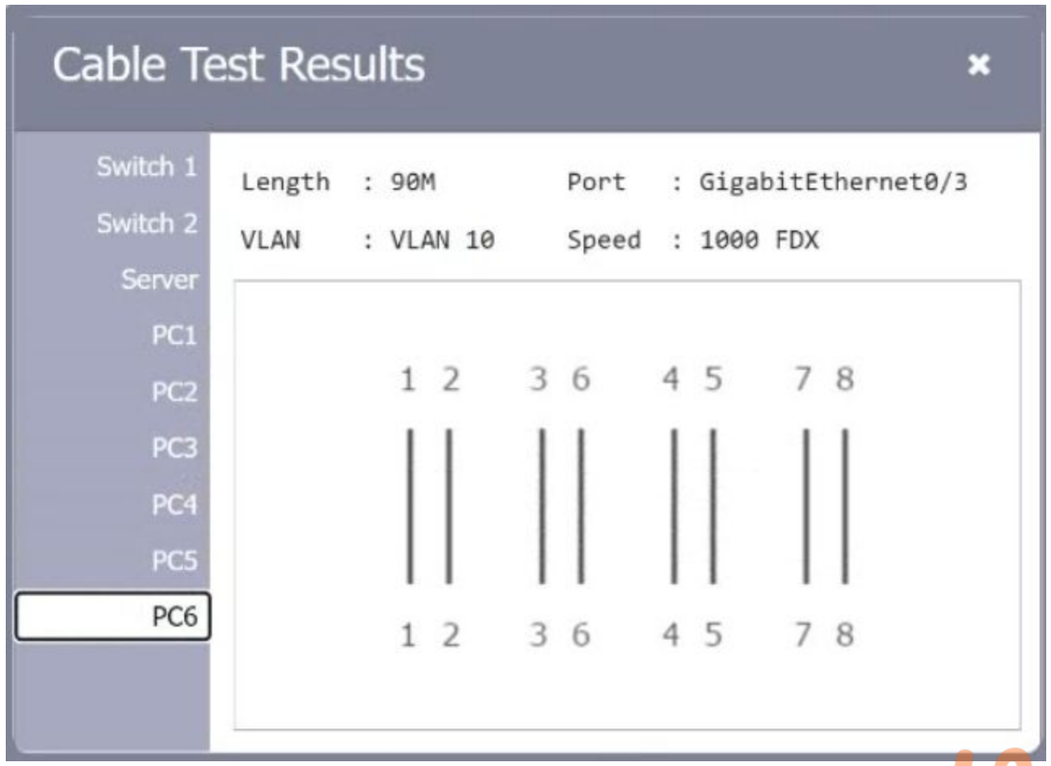
Vdumps


Cable Test Results
Switch 1
Switch 2
Server
PC1
PC2
PC3
PC4
PC5
PC6
Length : 12M
Port : GigabitEthernet0/1
VLAN : VLAN 10
Speed : 1000 FDX
1 2 3 6 4 5 7 8
1 2 3 6 4 5 7 8
Cable Test Results
Switch 1
Switch 2
Server
PC1
PC2
PC3
PC4
PC5
PC6
Length : 20M
Port : GigabitEthernet0/2
VLAN : VLAN 10
Speed : 1000 FDX
1 2 3 6 4 5 7 8
1 2 3 6 4 5 7 8

Vdumps


Cable Test Results
Switch 1
Switch 2
Server
PC1
PC2
PC3
PC4
PC5
PC6
Length : 18M
Port : GigabitEthernet0/3
VLAN : VLAN 11
Speed : 1000 FDX
1 2 3 6 4 5 7 8
1 2 3 6 4 5 7 8
Cable Test Results
Switch 1
Switch 2
Server
PC1
PC2
PC3
PC4
PC5
PC6
Length : 33M
Port : GigabitEthernet0/4
VLAN : VLAN 10
Speed : 1000 FDX
1 2 3 6 4 5 7 8
1 2 3 6 4 5 7 8

Vdumps


Cable Test Results
Switch 1
Switch 2
Server
PC1
PC2
PC3
PC4
PC5
PC6
Length : 90M
Port : GigabitEthernet0/3
VLAN : VLAN 10
Speed : 1000 FDX
1 2 3 6 4 5 7 8
1 2 3 6 4 5 7 8

No Problem
Cable short detected
Open cable detected
Connector on backward
Bad subnet
Wrong VLAN
Cable too long
Port shut down
Crossover cable used

No Problem

Select a Solution

Select a Solution
Replace cable
Change subnet mask
Change VLAN assignment
Change IP address
Enable Spanning Tree Protocol
Enable port security
Flush ARP cache
Change gateway address
Change DNS Address
Release and renew IP address

No Problem
Cable short detected
Open cable detected
Connector on backward
Bad subnet
Wrong VLAN
Cable too long
Port shut down
Crossover cable used

No Problem

Select a Solution

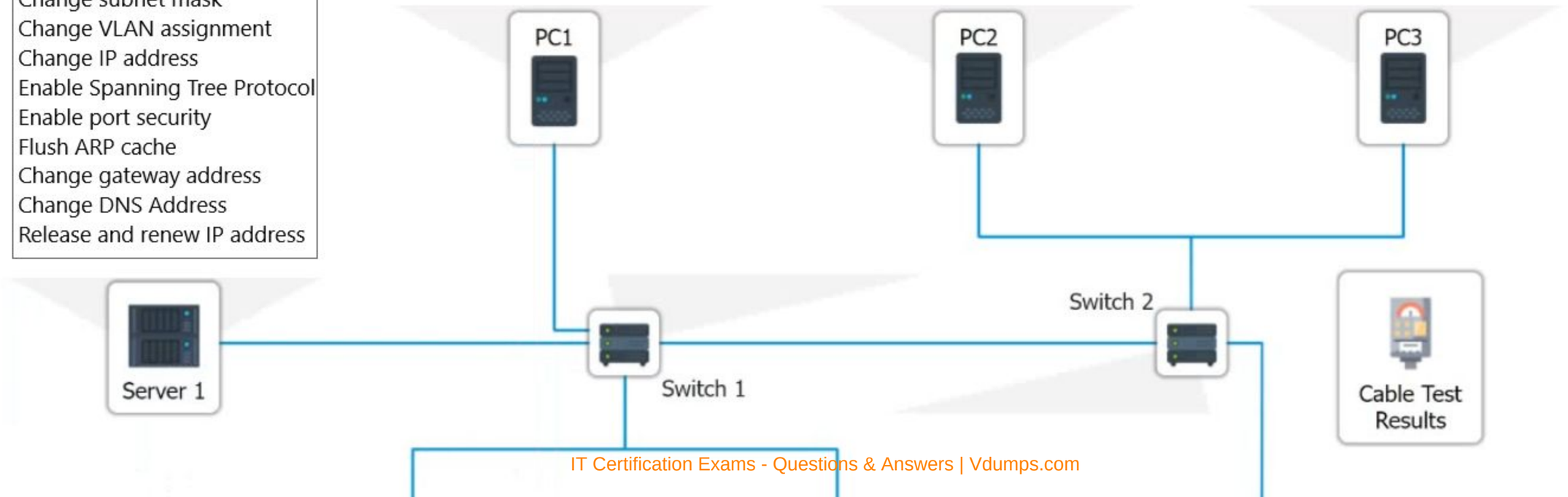
Select a Solution
Replace cable
Change subnet mask
Change VLAN assignment
Change IP address
Enable Spanning Tree Protocol
Enable port security
Flush ARP cache
Change gateway address
Change DNS Address
Release and renew IP address

No Problem
Cable short detected
Open cable detected
Connector on backward
Bad subnet
Wrong VLAN
Cable too long
Port shut down
Crossover cable used

No Problem

Select a Solution

Select a Solution
Replace cable
Change subnet mask
Change VLAN assignment
Change IP address
Enable Spanning Tree Protocol
Enable port security
Flush ARP cache
Change gateway address
Change DNS Address
Release and renew IP address



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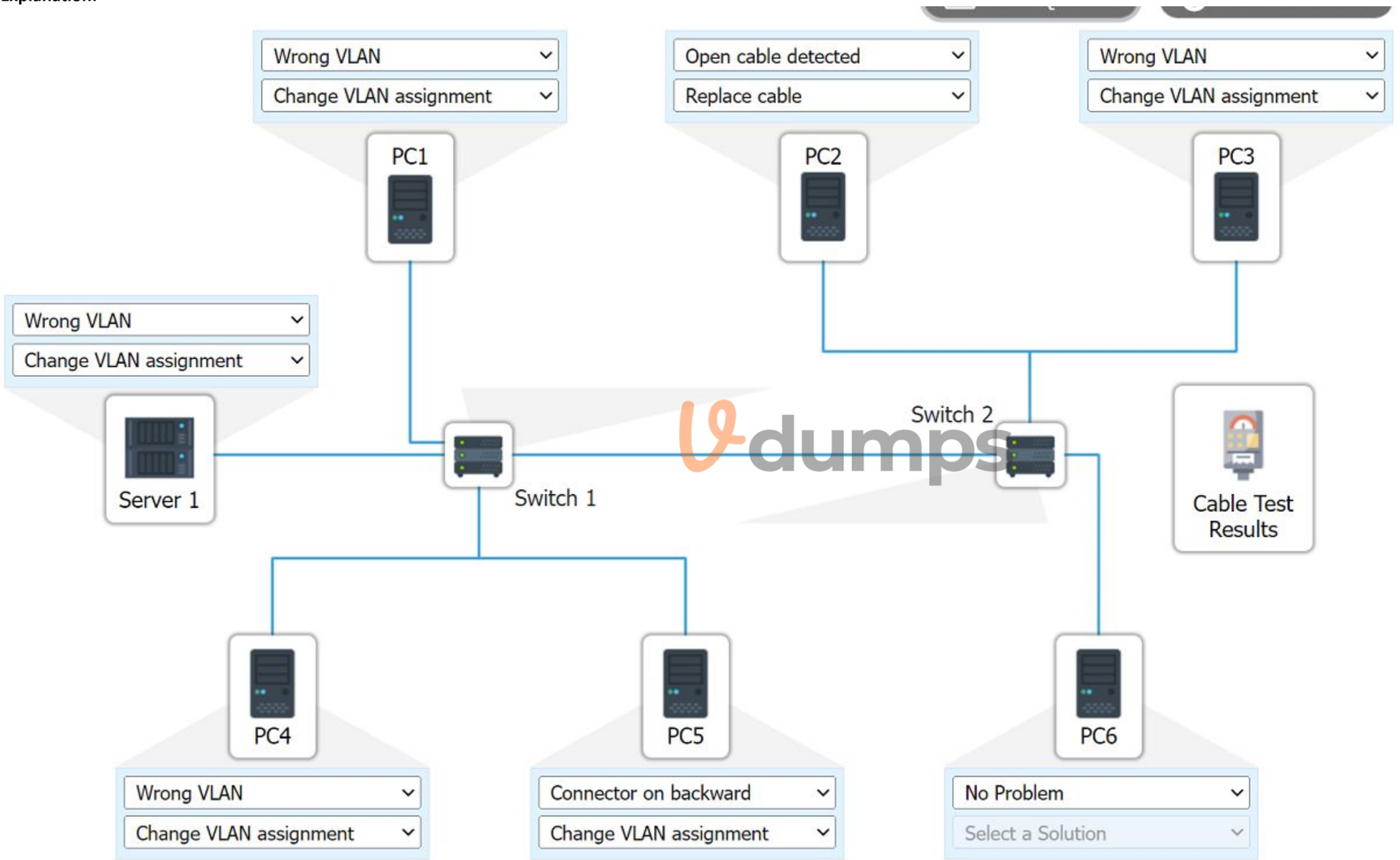
A. See the answer and solution below

Correct Answer: A
Section:
Explanation:



QUESTION 51
SIMULATION
After a recent power outage, users are reporting performance issues accessing the application servers. Wireless users are also reporting intermittent Internet issues.
INSTRUCTIONS
Click on each tab at the top of the screen. Select a widget to view information, then use the drop-down menus to answer the associated questions. If at any time you would like to bring back the initial state of the simulation,

please click the Reset All button.

Uplink Name	Uplink Speed	Total Usage	Average Throughput	Loss	Average Latency	Jitter
WAN1	10G	26,690GB Up/1,708.4GB Down	353MBs Up/23.42MBs Down	2.51%	24ms	9.5ms
WAN2	1G	930GB Up/138GB Down	12.21MBs Up/1.82MBs Down	0.01%	11ms	3.9ms

Which WAN station should be preferred for VoIP traffice?

WAN 1

Select WAN
WAN 1
WAN 2

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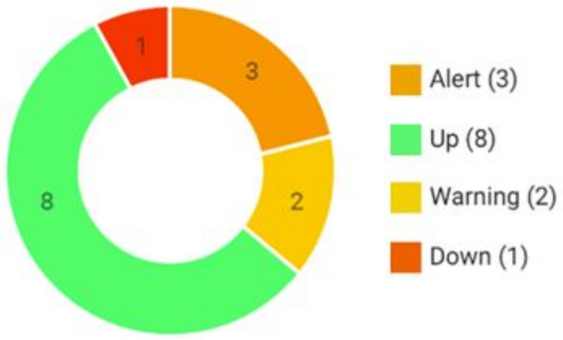
Network Health | Device Monitoring

Show Question | Reset All Answers

Device Status



Top Hosts

	SRC Host	Pkts	Flows	Bits
1	206.208.133.9	8.73 Mp	77	104.69 Gb
2	10.1.90.53	13.45 Mp	10	80.93 Gb
3	10.1.90.55	12.41 Mp	7	74.68 Gb
4	10.1.59.81	259.42 kp	23	3.01 Gb
5	10.1.99.22	182.53 kp	2	2.08 Gb
6	10.1.99.14	433.96 kp	11	2.08 Gb
7	10.1.99.28	164.84 kp	1	1.79 Gb
8	10.1.99.10	840.56 kp	180	1.70 Gb
9	10.1.99.24	135.64 kp	2	1.54 Gb
10	10.1.99.60	133.33 kp	1	1.51 Gb

Which device is experiencing connectivity issues?

Select Answer
Router A
Router B
WAP1
WAP2
WirelessController
Switch A
Switch B
DHCP Server
Web Server
APP Server

Router A

Which workstation IP is generating the MOST traffic?

Select Answer
10.1.99.28
10.1.99.14
10.1.99.10
10.1.99.22
10.1.99.24
206.208.133.10

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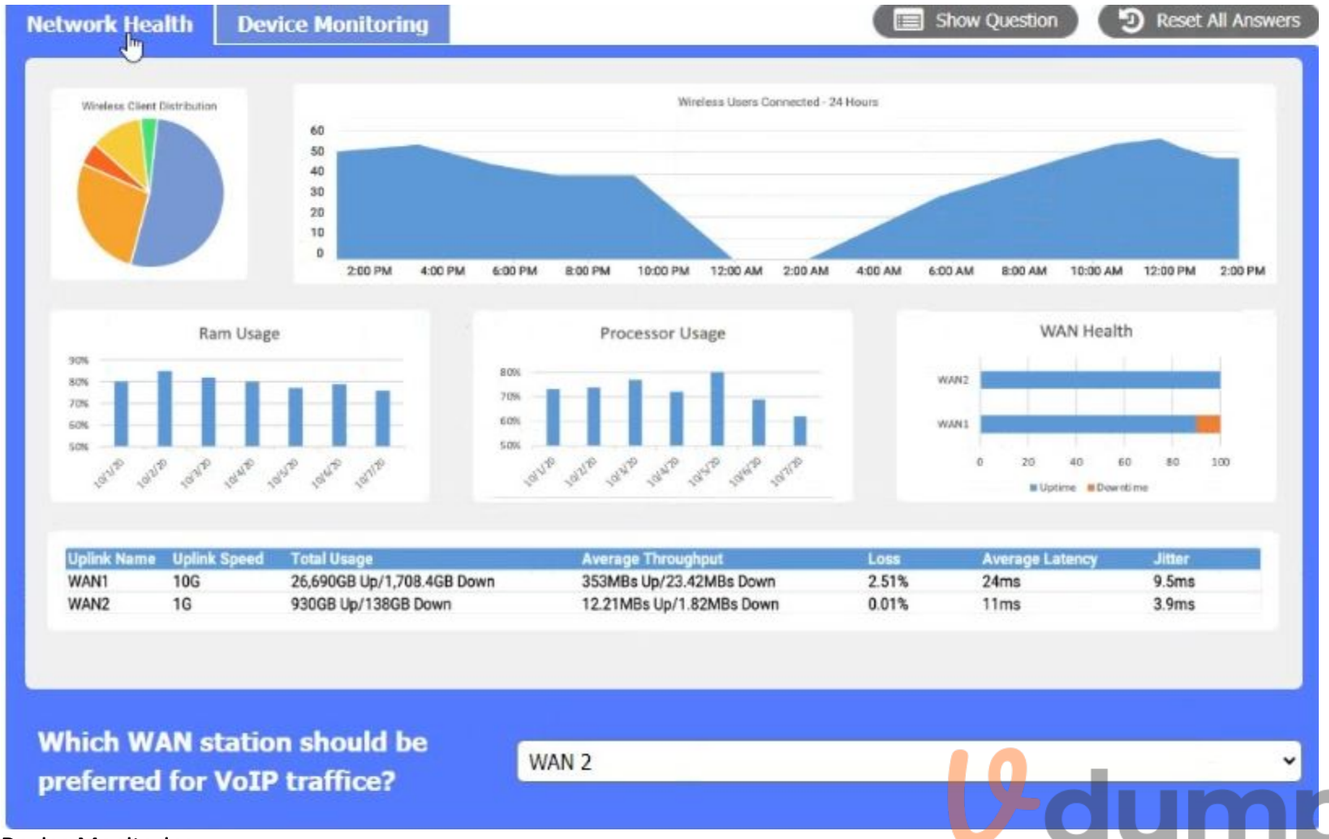
A. See the answer and solution below

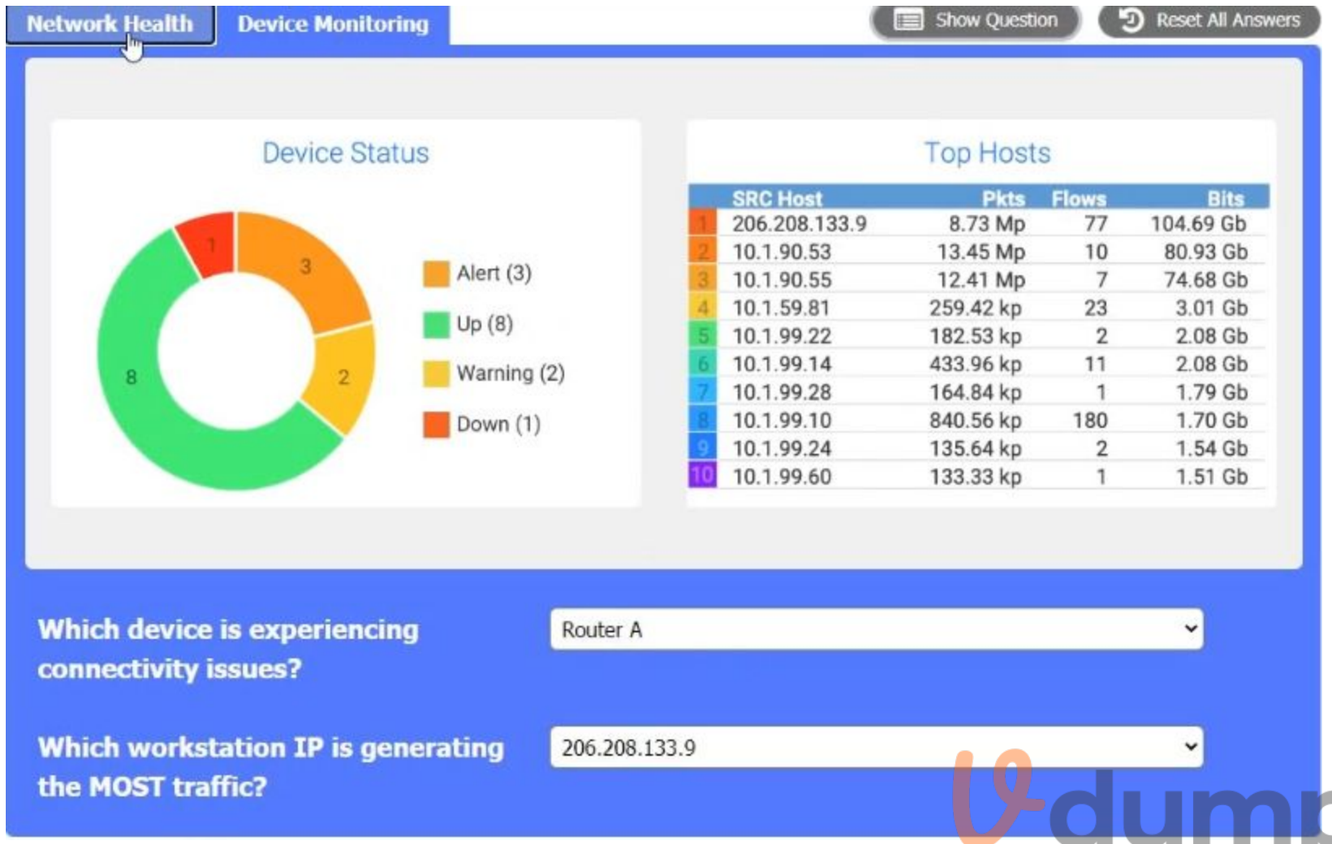
Correct Answer: A
Section:
Explanation:
Network Health:
WAN 2 appears to have a lower average latency and loss percentage, which would make it the preferred WAN station for VoIP traffic. VoIP traffic requires low latency and packet loss to ensure good voice quality and reliability.
WAN 1 seems to have higher RAM and processor usage, which could also affect the performance of VoIP traffic.
Here's the summary of the key metrics for WAN 1 and WAN 2 from the image provided:
WAN 1:
Uplink Speed: 10G
Total Usage: 26.969GB Up / 1.748GB Down
Average Throughput: 353MBps Up / 23.42MBps Down
Loss: 2.51%
Average Latency: 24ms
Jitter: 9.5ms
WAN 2:
Uplink Speed: 1G
Total Usage: 930GB Up / 138GB Down
Average Throughput: 12.21MBps Up / 1.82MBps Down
Loss: 0.01%
Average Latency: 11ms
Jitter: 3.9ms
For VoIP traffic, low latency and jitter are particularly important to ensure voice quality. While WAN 1 has higher bandwidth and throughput, it also has higher latency and jitter compared to WAN 2. However, WAN 2 has much lower loss, lower latency, and lower jitter, which are more favorable for VoIP traffic that is sensitive to delays and variation in packet arrival times.
Given this information, WAN 2 would generally be preferred for VoIP traffic due to its lower latency, lower jitter, and significantly lower loss percentage, despite its lower bandwidth compared to WAN 1. The high bandwidth of WAN 1 may be more suitable for other types of traffic that are less sensitive to latency and jitter, such as bulk data transfers.

Vdumps



Device Monitoring:

the device that is experiencing connectivity issues is theAPP Server or Router 1, which has a status ofDown. This means that the server is not responding to network requests or sending any data. You may want to check the physical connection, power supply, and configuration of the APP Server to troubleshoot the problem.



QUESTION 52

SIMULATION

A network administrator has been tasked with configuring a network for a new corporate office. The office consists of two buildings, separated by 50 feet with no physical connectivity. The configuration must meet the following requirements:

. Devices in both buildings should be able to access the Internet.

. Security insists that all Internet traffic be inspected before entering the network.

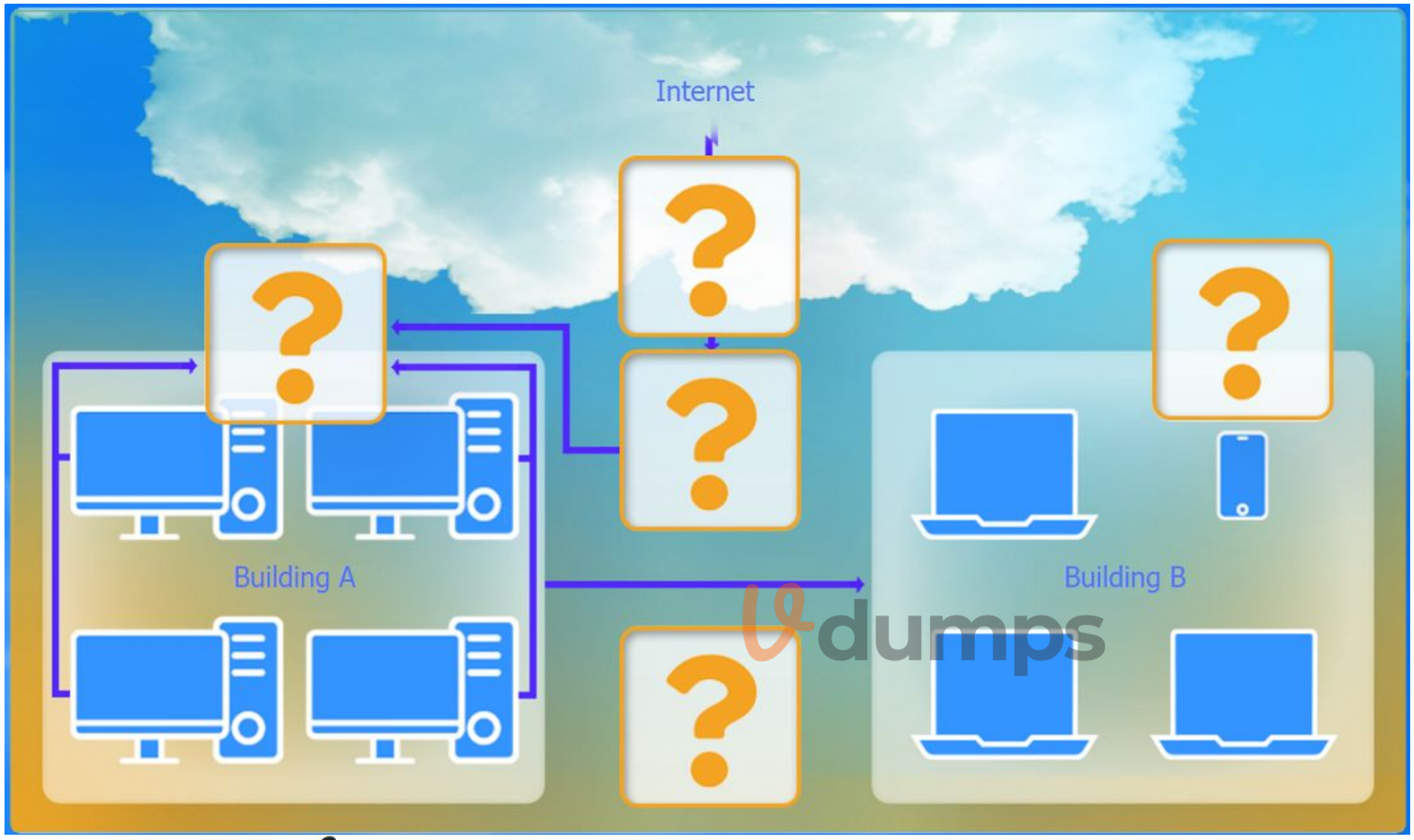
. Desktops should not see traffic destined for other devices.

INSTRUCTIONS

Select the appropriate network device for each location. If applicable, click on the magnifying glass next to any device which may require configuration updates and make any necessary changes.

Not all devices will be used, but all locations should be filled.

If at any time you would like to bring back the initial state of the simulation, please click the Reset All button.



- Hub
- Switch
- WAP
- Firewall
- Router
- Wireless range extender

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Wireless range extender settings

Basic Configuration

Access Point Name	WAP extender
Gateway	192.168.0.1
SSID	CORP
SSID Broadcast	(•) Yes ( ) No

Wireless

Mode	
Channel	

Wired

Speed	(•) Auto ( ) 100 ( ) 1000
Duplex	(•) Auto ( ) Half ( ) Full

Security Configuration

Security Settings	( ) None ( ) WEP ( ) WPA ( ) WPA2 (•) WPA2 - Enterprise
Key or Passphrase	N@En71$90*Ha

Reset to Default | Save | Close

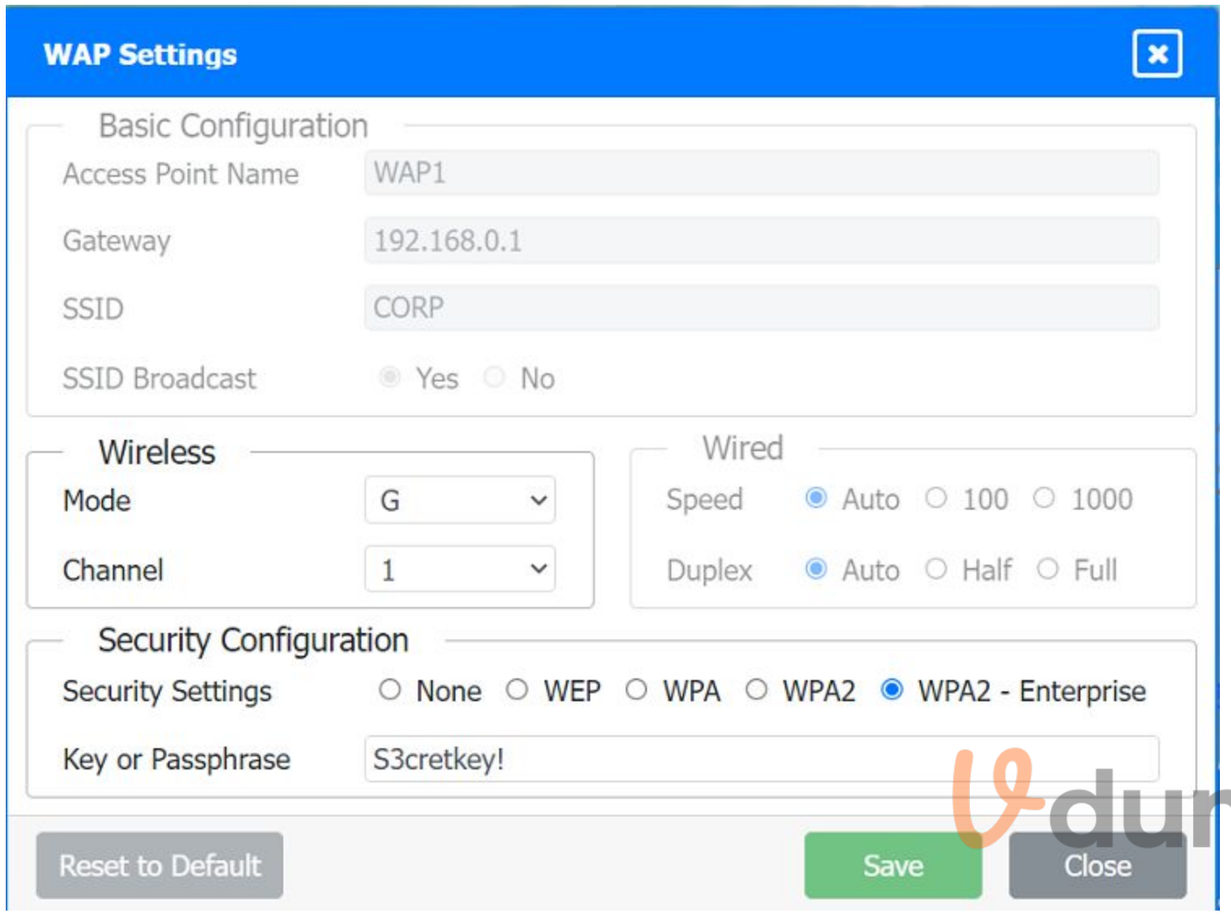
Vdumps

Firewall

Rule Name	Source	Destination	Service	Action
DNS Rule	192.168.0.1/24	ANY	DNS	PERMIT
HTTPS Outbound	192.169.0.1/24	ANY	HTTPS	PERMIT
Management	ANY	192.168.0.1/24	SSH	PERMIT
HTTPS Inbound	ANY	192.168.0.1/24	HTTPS	DENY
HTTP Inbound	ANY	192.168.0.1/24	HTTP	DENY

Reset to Default | Save | Close

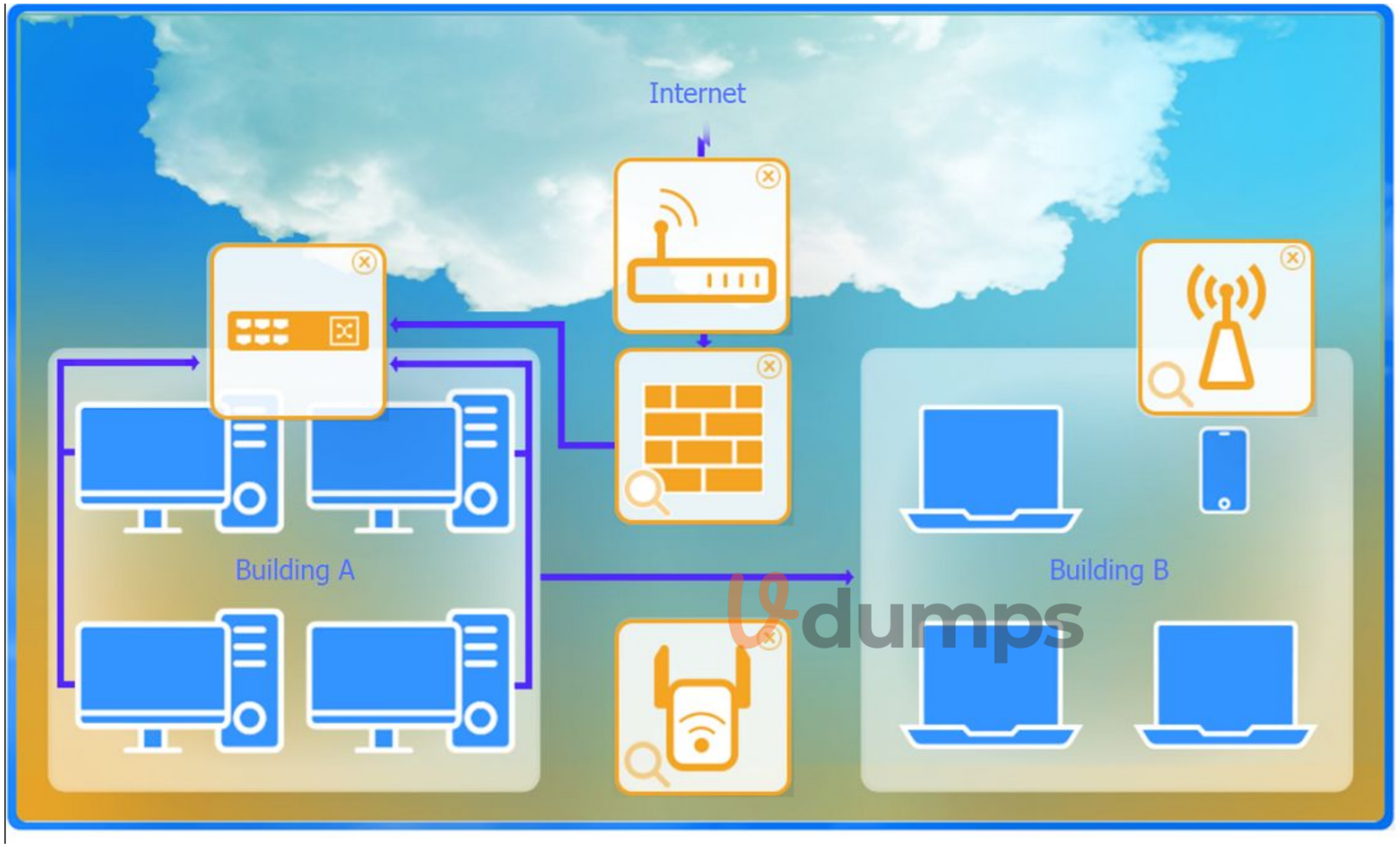
Vdumps



A. See the step by step complete solution below

Correct Answer: A
Section:
Explanation:
Devices in both buildings should be able to access the Internet.
Security insists that all Internet traffic be inspected before entering the network.
Desktops should not see traffic destined for other devices.
Here is the corrected layout with explanation:
Building A:
Switch: Correctly placed to connect all desktops.
Firewall: Correctly placed to inspect all incoming and outgoing traffic.
Building B:
Switch: Not needed. Instead, place a Wireless Access Point (WAP) to provide wireless connectivity for laptops and mobile devices.
Between Buildings:
Wireless Range Extender: Correctly placed to provide connectivity between the buildings wirelessly.
Connection to the Internet:
Router: Correctly placed to connect to the Internet and route traffic between the buildings and the Internet.
Firewall: The firewall should be placed between the router and the internal network to inspect all traffic before it enters the network.
Corrected Setup:

Top-left (Building A): Switch
Bottom-left (Building A): Firewall (inspect traffic before it enters the network)
Top-middle (Internet connection): Router
Bottom-middle (between buildings): Wireless Range Extender
Top-right (Building B): Wireless Access Point (WAP)
In this corrected setup, the WAP in Building B will connect wirelessly to the Wireless Range Extender, which is connected to the Router. The Router is connected to the Firewall to ensure all traffic is inspected before it enters the network.
Configuration for Wireless Range Extender:
SSID: CORP
Security Settings: WPA2 or WPA2 - Enterprise
Key or Passphrase: [Enter a strong passphrase]
Mode: [Set based on your network plan]
Channel: [Set based on your network plan]
Speed: Auto
Duplex: Auto
With these settings, both buildings will have secure access to the Internet, and all traffic will be inspected by the firewall before entering the network. Desktops and other devices will not see traffic intended for others, maintaining the required security and privacy.



To configure the wireless range extender for security, follow these steps:
SSID (Service Set Identifier):
Ensure the SSID is set to 'CORP' as shown in the exhibit.
Security Settings:
WPA2 or WPA2 - Enterprise: Choose one of these options for stronger security. WPA2-Enterprise provides more robust security with centralized authentication, which is ideal for a corporate environment.
Key or Passphrase:
If you select WPA2, enter a strong passphrase in the 'Key or Passphrase' field.
If you select WPA2 - Enterprise, you will need to configure additional settings for authentication servers, such as RADIUS, which is not shown in the exhibit.
Wireless Mode and Channel:
Set the appropriate mode and channel based on your network design and the environment to avoid interference. These settings are not specified in the exhibit, so set them according to your network plan.
Wired Speed and Duplex:
Set the speed to 'Auto' unless you have specific requirements for 100 or 1000 Mbps.
Set the duplex to 'Auto' unless you need to specify half or full duplex based on your network equipment.
Save Configuration:
After making the necessary changes, click the 'Save' button to apply the settings.

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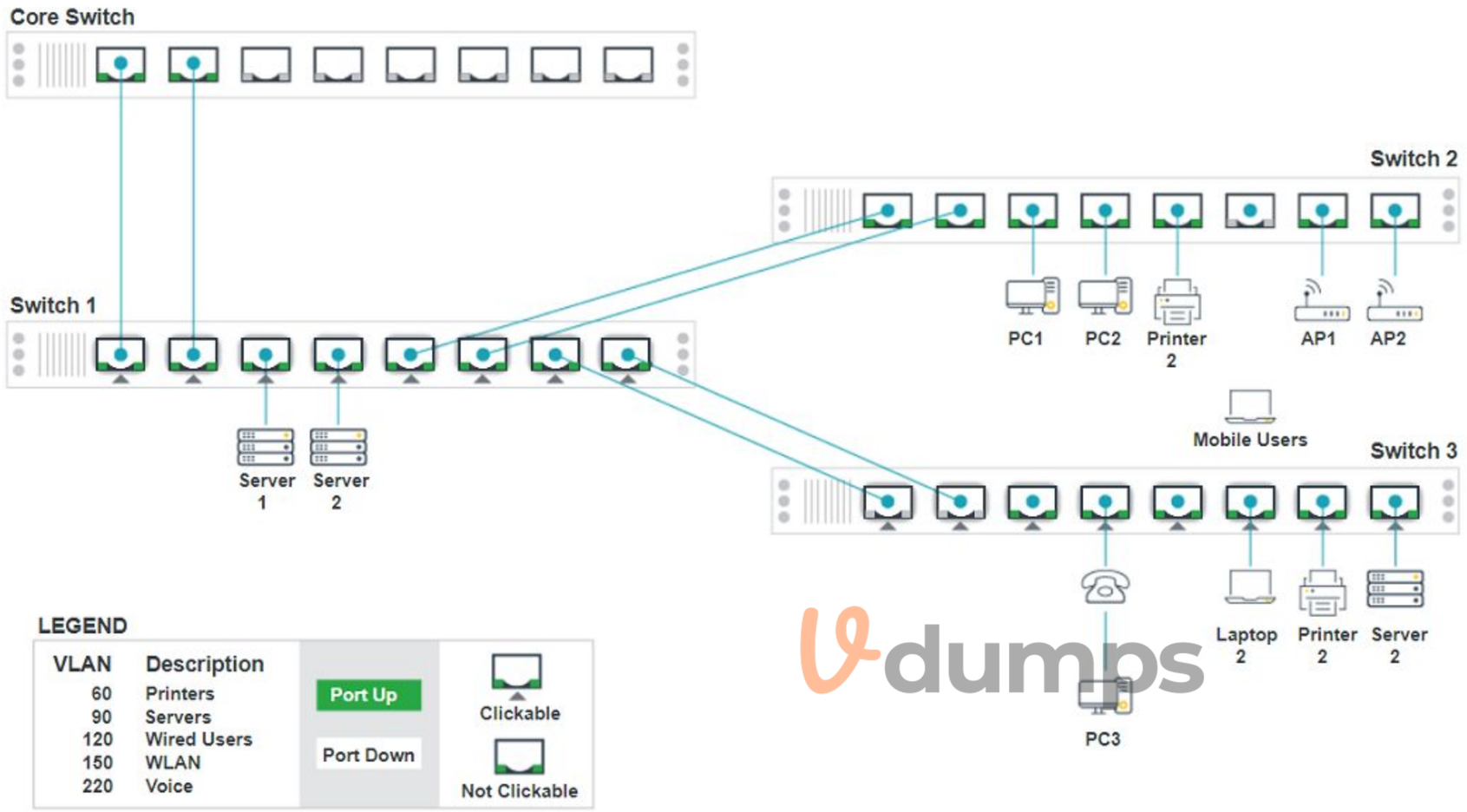
Here is how the configuration should look after adjustments:
SSID: CORP
Security Settings: WPA2 or WPA2 - Enterprise
Key or Passphrase: [Enter a strong passphrase]
Mode: [Set based on your network plan]
Channel: [Set based on your network plan]
Speed: Auto
Duplex: Auto
Once these settings are configured, your wireless range extender will provide secure connectivity for devices in both buildings.
Firewall setting to to ensure complete compliance with the requirements and best security practices, consider the following adjustments and additions:
DNS Rule: This rule allows DNS traffic from the internal network to any destination, which is fine.
HTTPS Outbound: This rule allows HTTPS traffic from the internal network (assuming 192.169.0.1/24 is a typo and should be 192.168.0.1/24) to any destination, which is also good for secure web browsing.
Management: This rule allows SSH access to the firewall for management purposes, which is necessary for administrative tasks.
HTTPS Inbound: This rule denies inbound HTTPS traffic to the internal network, which is good unless you have a web server that needs to be accessible from the internet.
HTTP Inbound: This rule denies inbound HTTP traffic to the internal network, which is correct for security purposes.
Suggested Additional Settings:
Permit General Outbound Traffic: Allow general outbound traffic for web access, email, etc.
Block All Other Traffic: Ensure that all other traffic is blocked to prevent unauthorized access.
Firewall Configuration Adjustments:
Correct the Network Typo:
Ensure that the subnet 192.169.0.1/24 is corrected to 192.168.0.1/24.
Permit General Outbound Traffic:
Rule Name: General Outbound
Source: 192.168.0.1/24
Destination: ANY
Service: ANY
Action: PERMIT
Deny All Other Traffic:
Rule Name: Block All
Source: ANY
Destination: ANY
Service: ANY
Action: DENY
Here is how your updated firewall settings should look:
Rule Name
Source
Destination
Service
Action
DNS Rule
192.168.0.1/24
ANY
DNS
PERMIT
HTTPS Outbound
192.168.0.1/24
ANY
HTTPS
PERMIT
Management

ANY
192.168.0.1/24
SSH
PERMIT
HTTPS Inbound
ANY
192.168.0.1/24
HTTPS
DENY
HTTP Inbound
ANY
192.168.0.1/24
HTTP
DENY
General Outbound
192.168.0.1/24
ANY
ANY
PERMIT
Block All
ANY
ANY
ANY
DENY
These settings ensure that:
Internal devices can access DNS and HTTPS services externally.
Management access via SSH is permitted.
Inbound HTTP and HTTPS traffic is denied unless otherwise specified.
General outbound traffic is allowed.
All other traffic is blocked by default, ensuring a secure environment.
Make sure to save the settings after making these adjustments.

QUESTION 53
SIMULATION
A network technician replaced an access layer switch and needs to reconfigure it to allow the connected devices to connect to the correct networks.
INSTRUCTIONS
Click on the appropriate port(s) on Switch 1 and Switch 3 to verify or reconfigure the correct settings:
* Ensure each device accesses only its correctly associated network.
* Disable all unused switchports.
. Require fault-tolerant connections between the switches.
. Only make necessary changes to complete the above requirements.



LEGEND

VLAN	Description
60	Printers
90	Servers
120	Wired Users
150	WLAN
220	Voice

Port Up

Port Down

Clickable

Not Clickable

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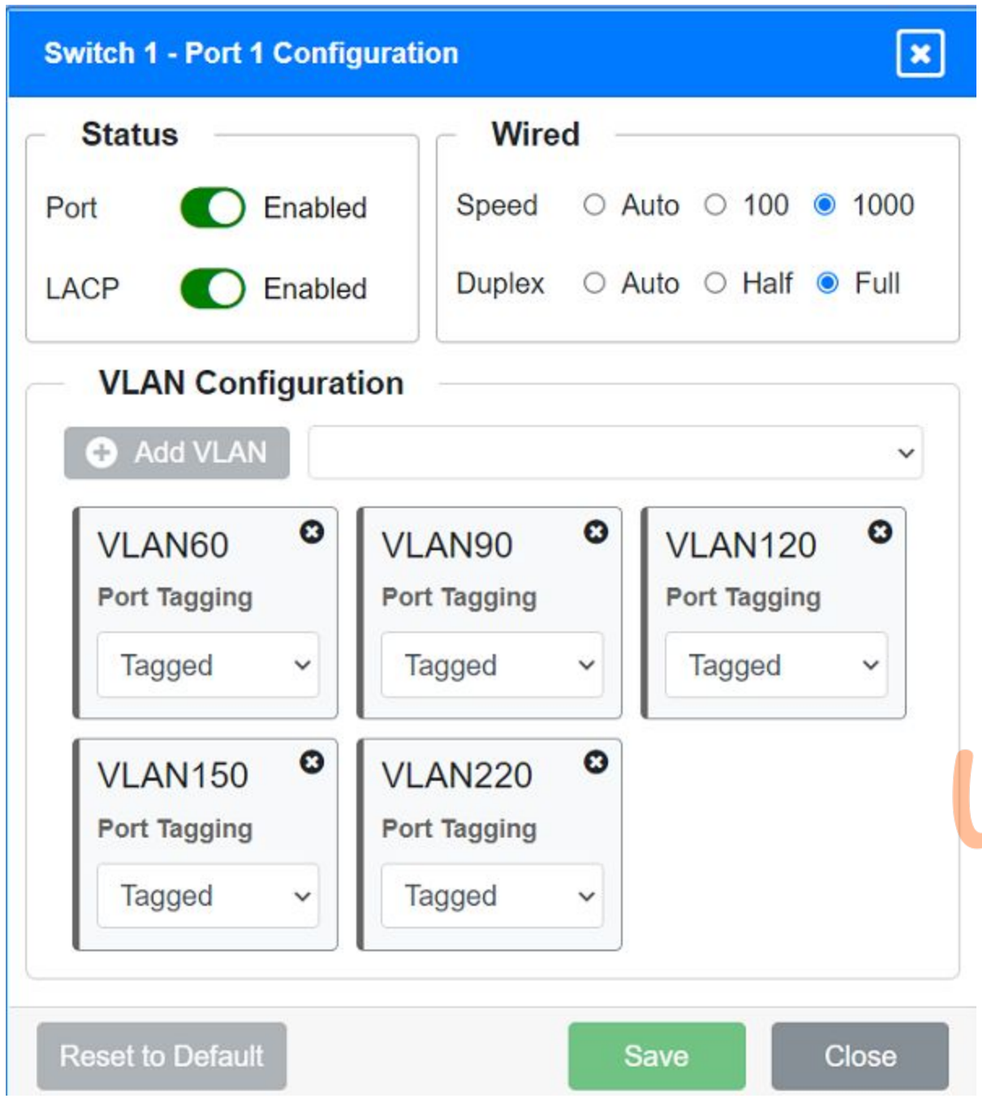
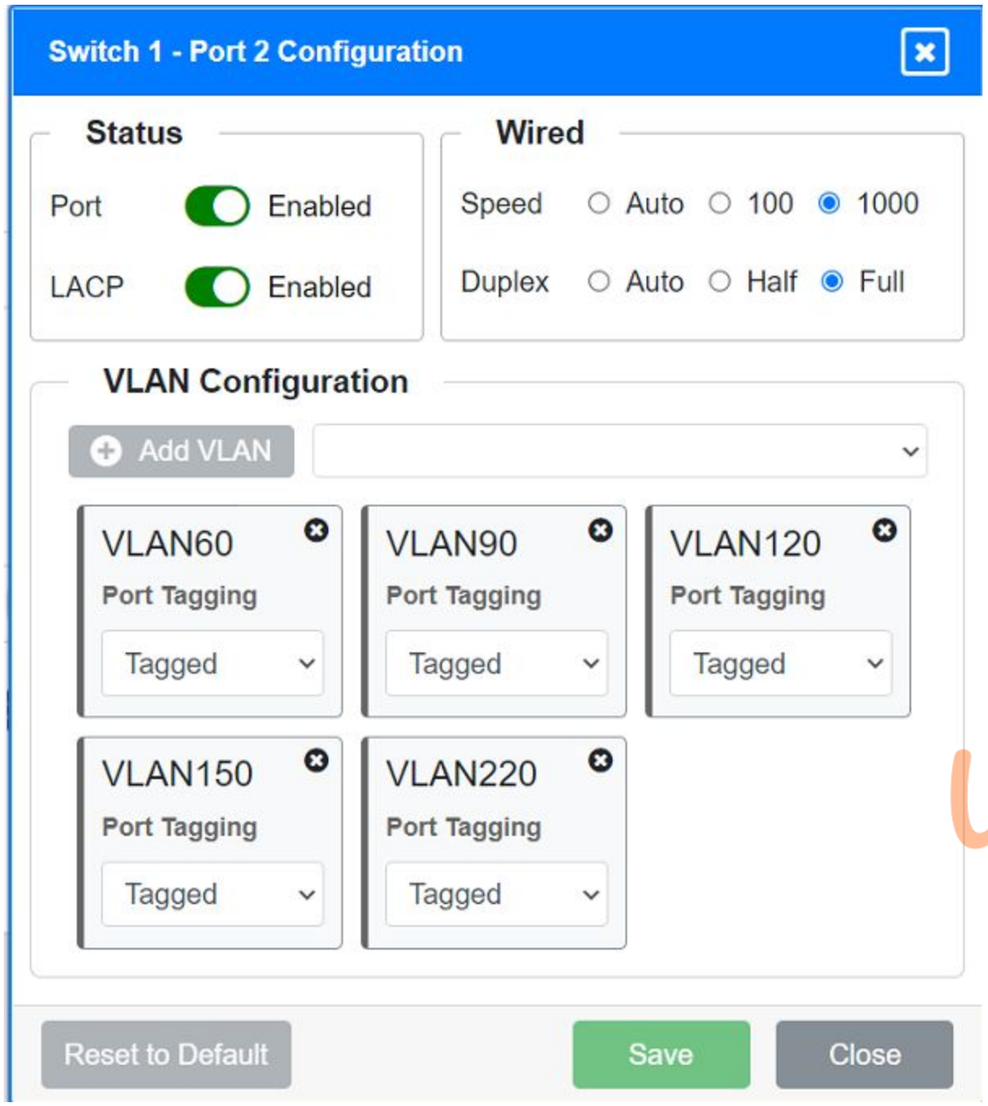
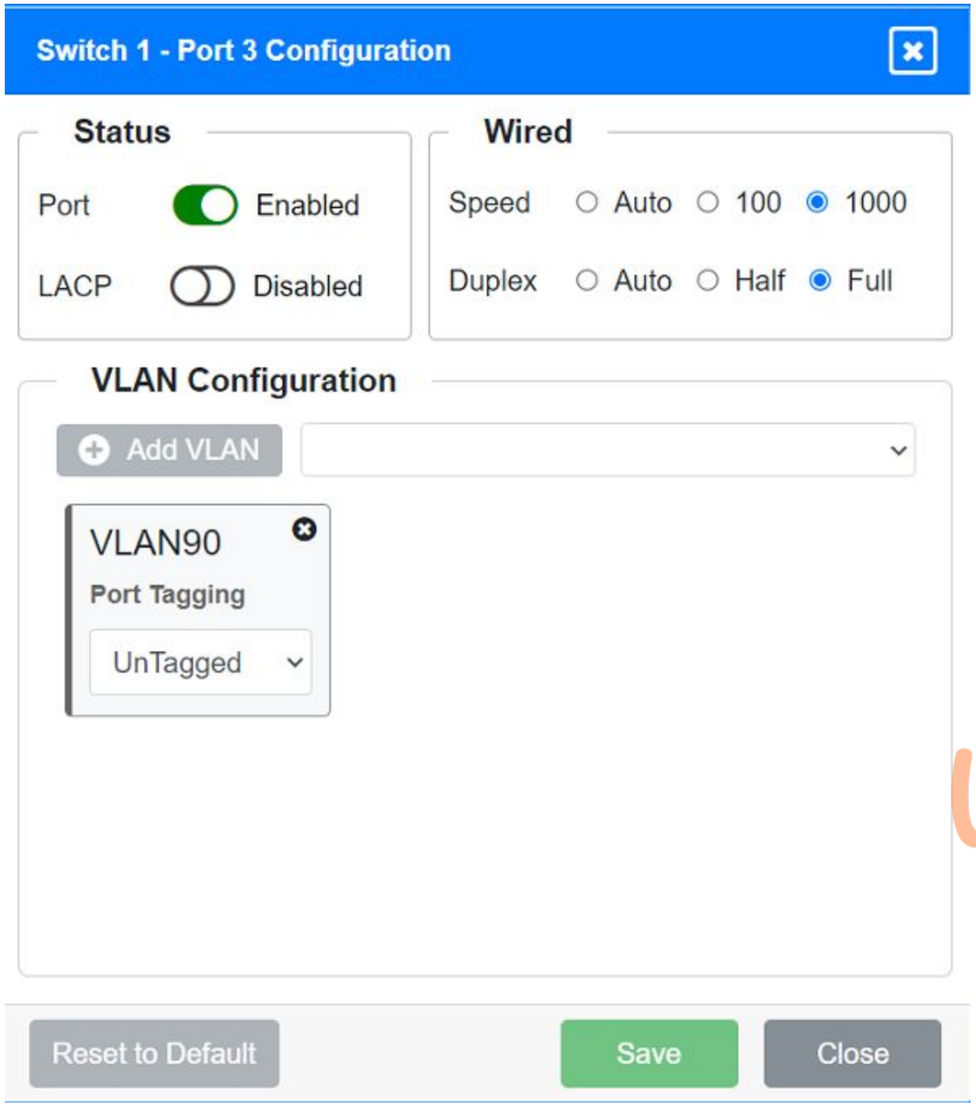

Switch 1 - Port 1 Configuration
Status
Port
Enabled
LACP
Enabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN60
Port Tagging
Tagged
VLAN90
Port Tagging
Tagged
VLAN120
Port Tagging
Tagged
VLAN150
Port Tagging
Tagged
VLAN220
Port Tagging
Tagged
Reset to Default
Save
Close

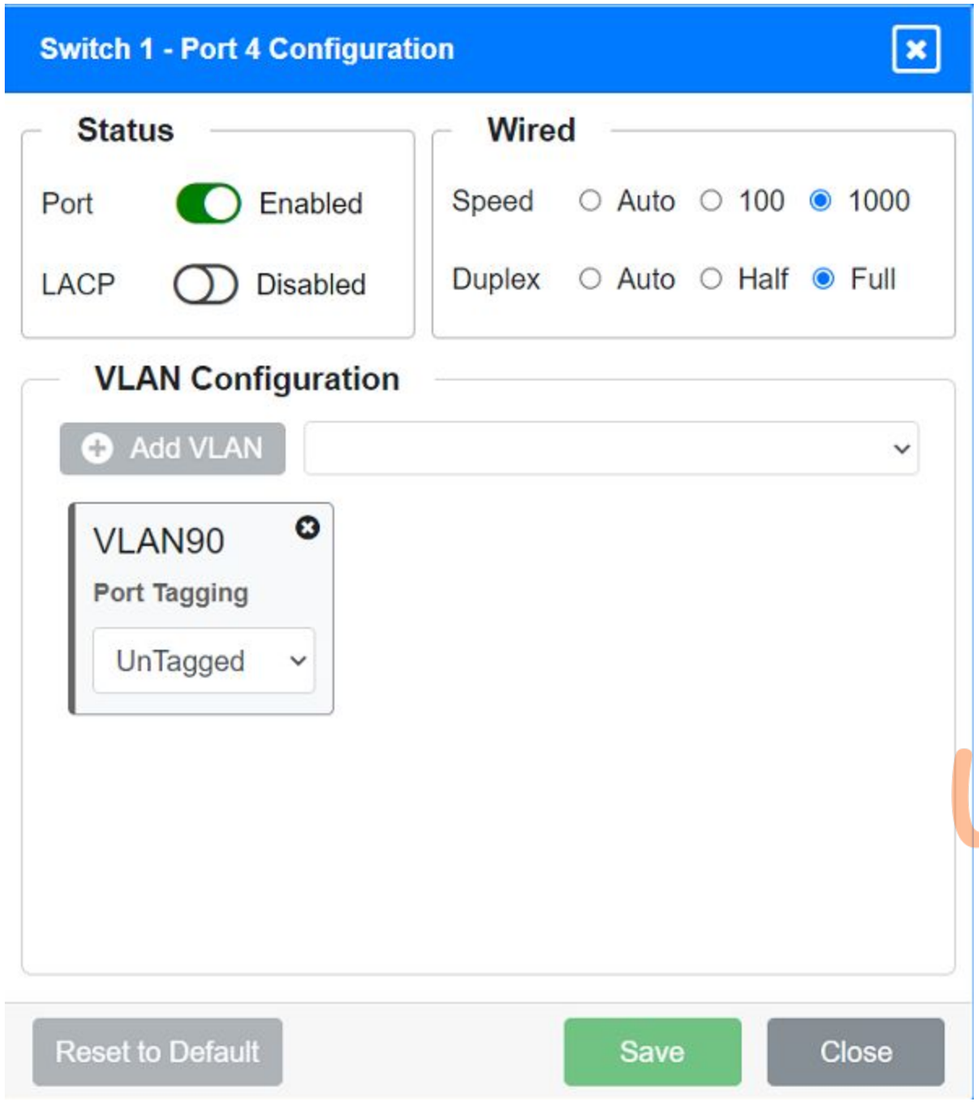
Vdumps


Switch 1 - Port 2 Configuration
Status
Port
Enabled
LACP
Enabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN60
Port Tagging
Tagged
VLAN90
Port Tagging
Tagged
VLAN120
Port Tagging
Tagged
VLAN150
Port Tagging
Tagged
VLAN220
Port Tagging
Tagged
Reset to Default
Save
Close

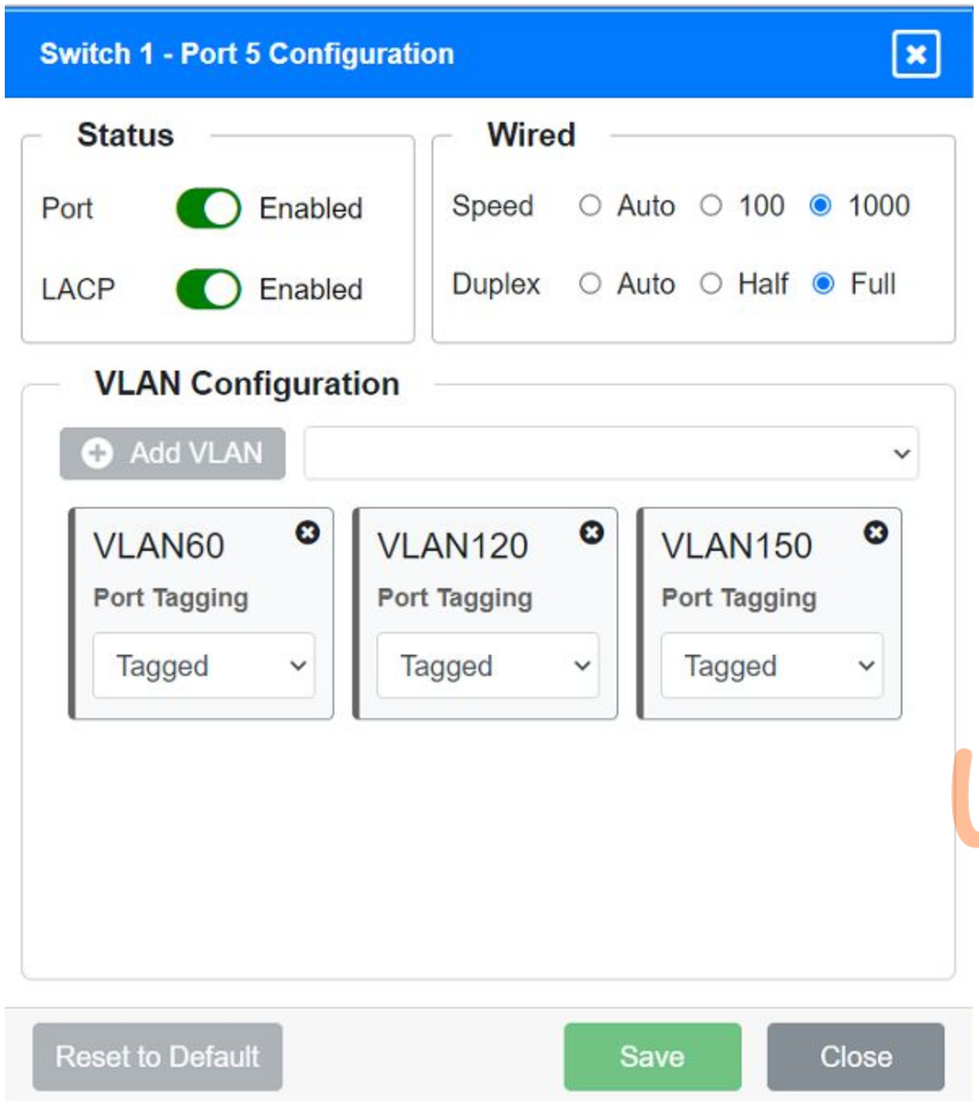
Vdumps


Switch 1 - Port 3 Configuration
Status
Port
Enabled
LACP
Disabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN90
Port Tagging
UnTagged
Reset to Default
Save
Close

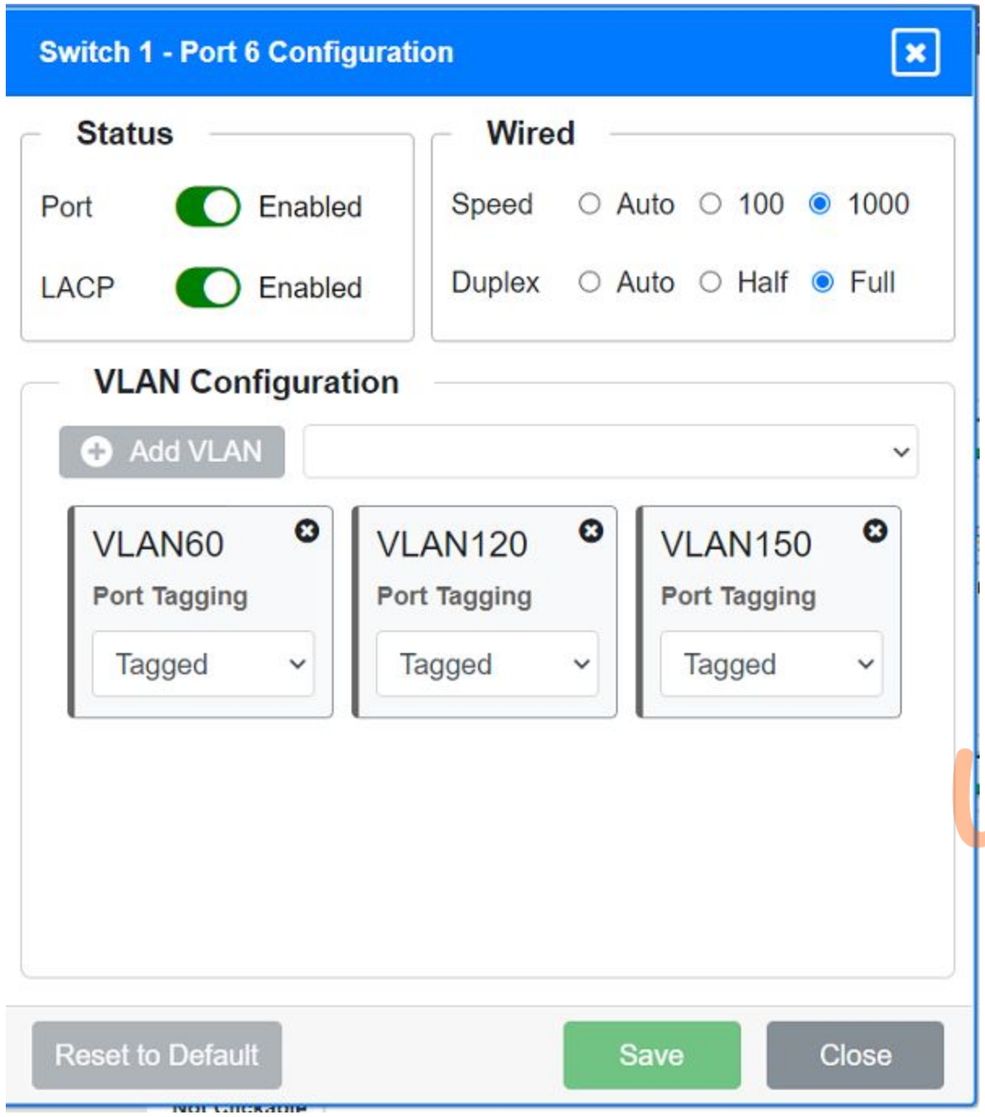
dumps


Switch 1 - Port 4 Configuration
Status
Port
Enabled
LACP
Disabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN90
Port Tagging
UnTagged
Reset to Default
Save
Close

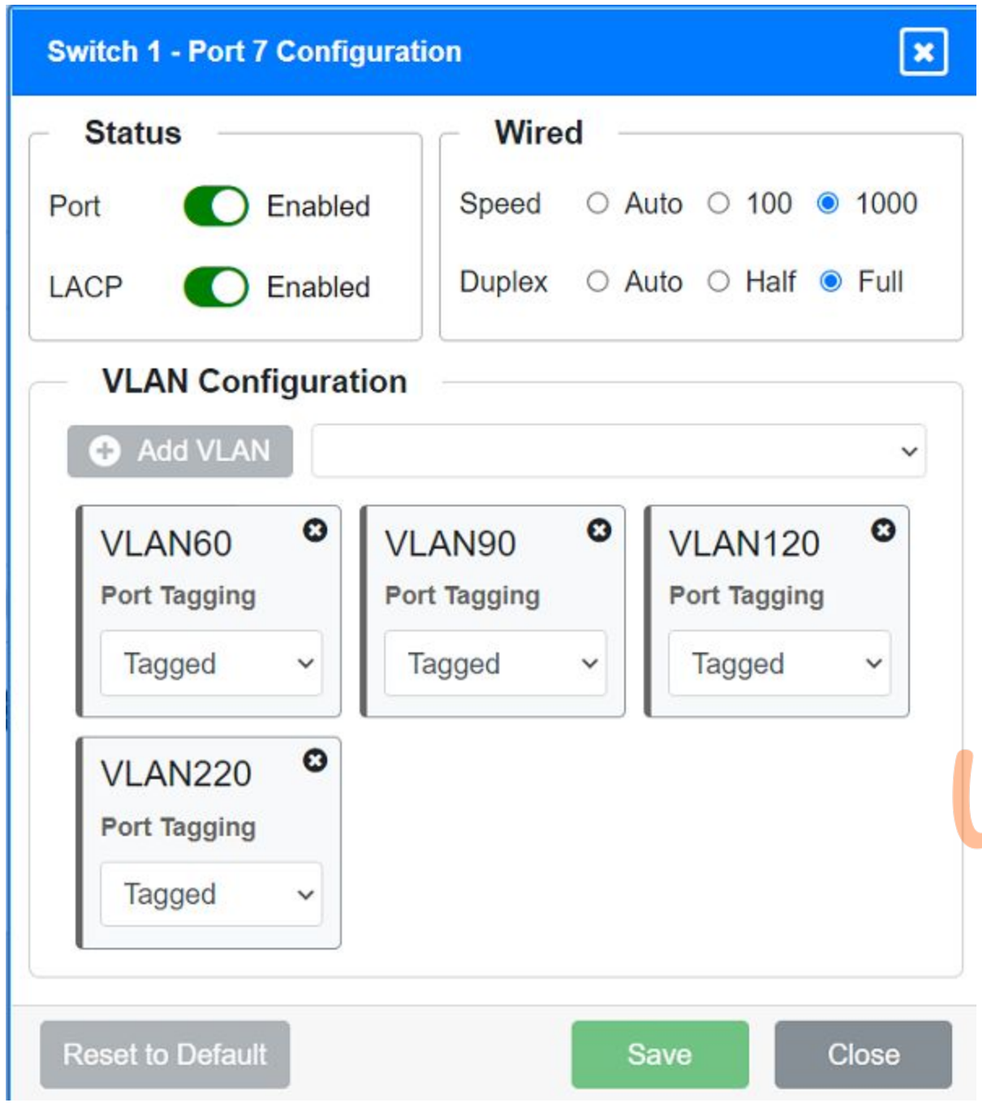
Vdumps


Switch 1 - Port 5 Configuration
Status
Port
Enabled
LACP
Enabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN60
Port Tagging
Tagged
VLAN120
Port Tagging
Tagged
VLAN150
Port Tagging
Tagged
Reset to Default
Save
Close

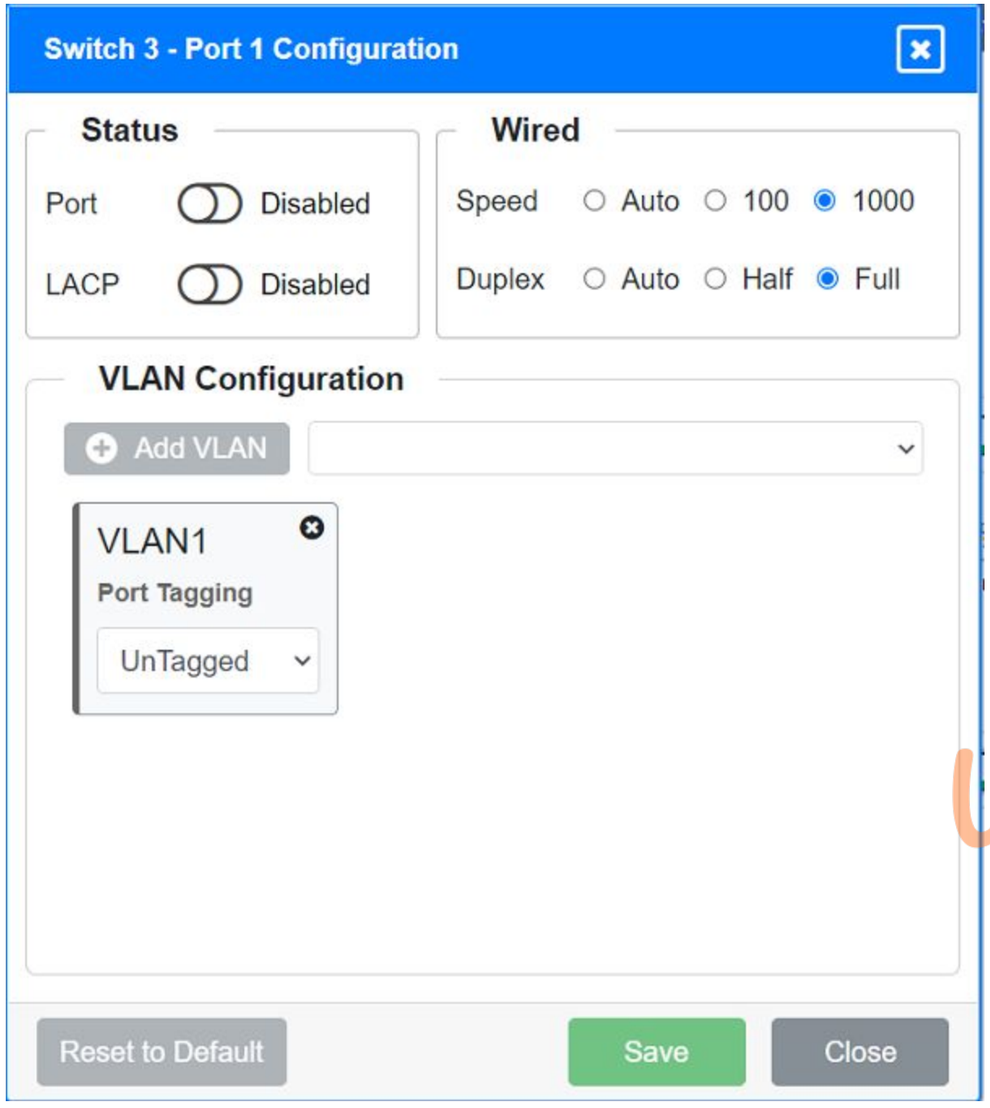
dumps


Switch 1 - Port 6 Configuration
Status
Port
Enabled
LACP
Enabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN60
Port Tagging
Tagged
VLAN120
Port Tagging
Tagged
VLAN150
Port Tagging
Tagged
Reset to Default
Save
Close

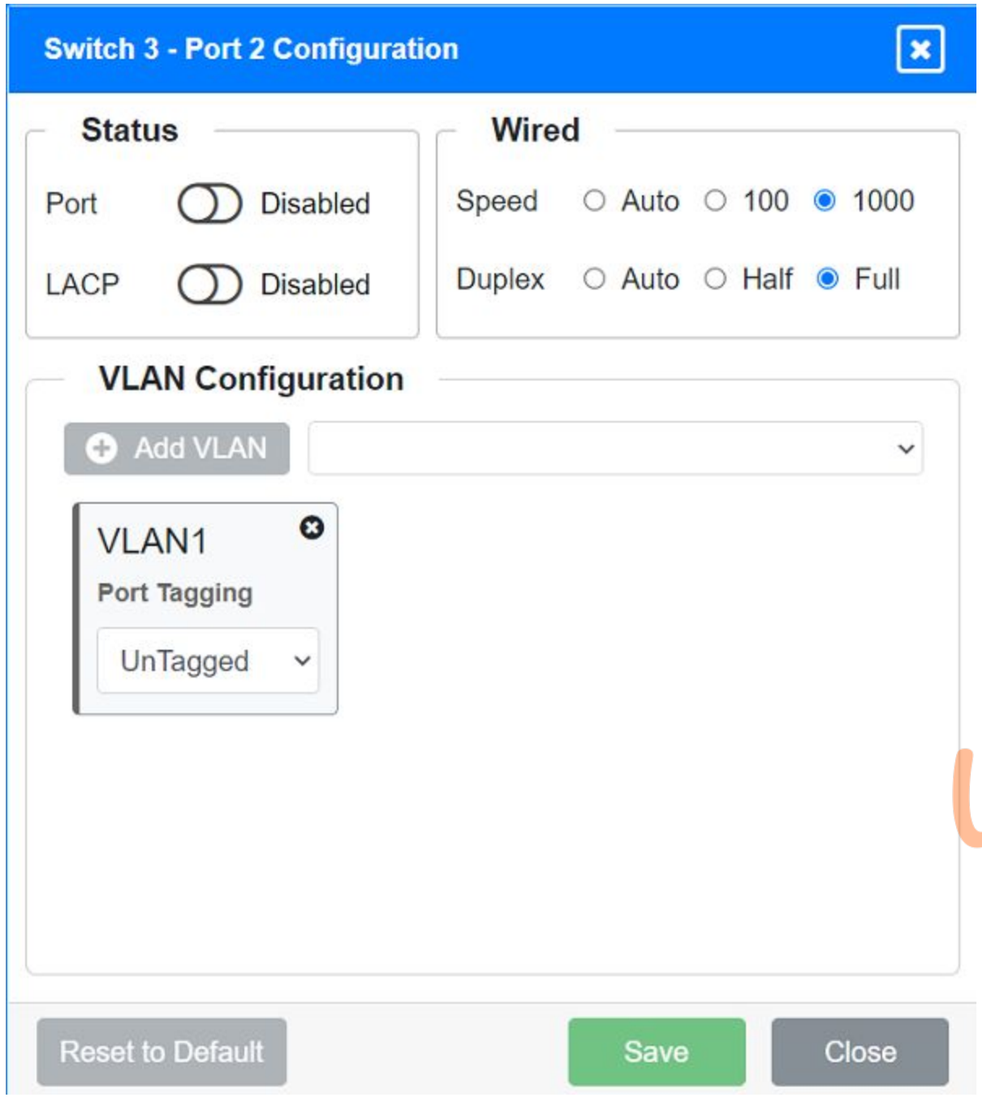
Vdumps


Switch 1 - Port 7 Configuration
Status
Port
Enabled
LACP
Enabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN60
Port Tagging
Tagged
VLAN90
Port Tagging
Tagged
VLAN120
Port Tagging
Tagged
VLAN220
Port Tagging
Tagged
Reset to Default
Save
Close

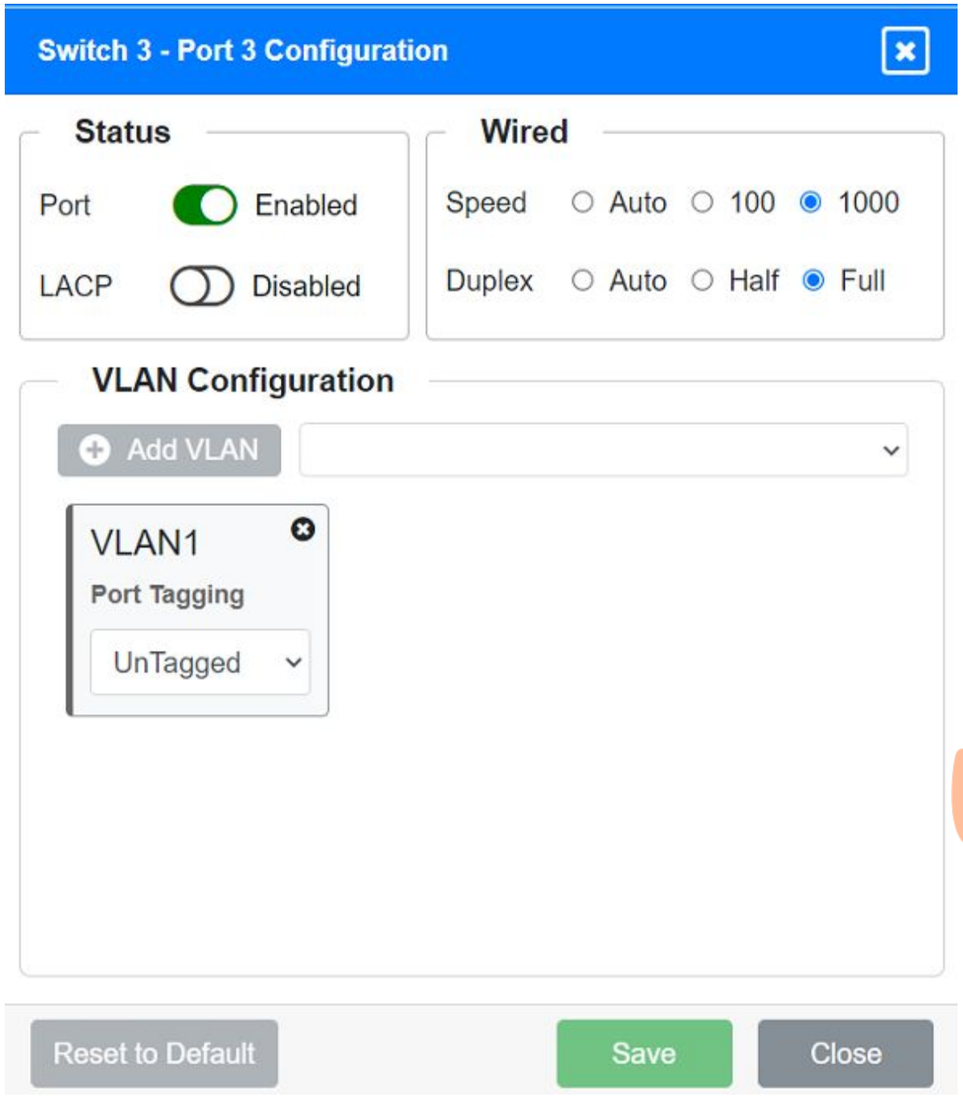
Vdumps


Switch 3 - Port 1 Configuration
Status
Port
Disabled
LACP
Disabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN1
Port Tagging
UnTagged
Reset to Default
Save
Close

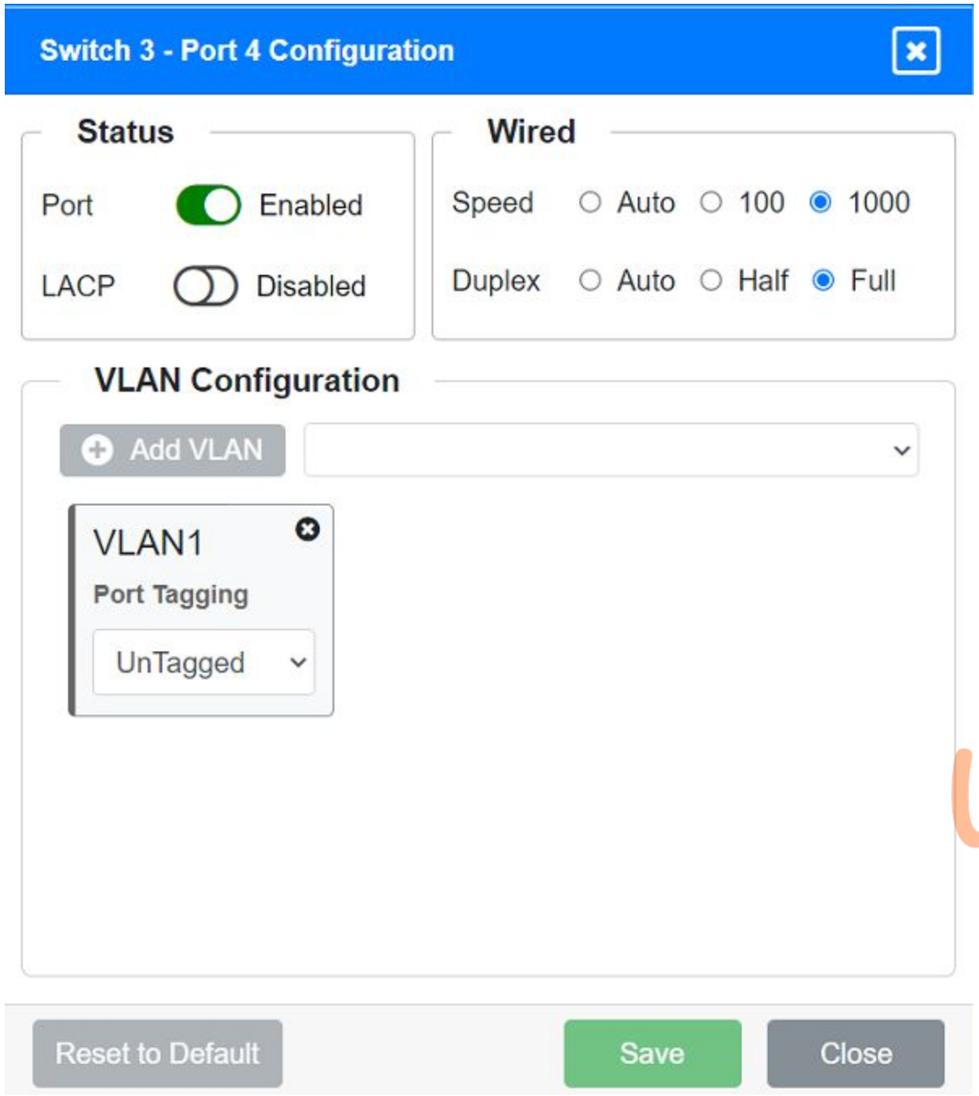
dumps


Switch 3 - Port 2 Configuration
Status
Port
Disabled
LACP
Disabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN1
Port Tagging
UnTagged
Reset to Default
Save
Close

Vdumps


Switch 3 - Port 3 Configuration
Status
Port
Enabled
LACP
Disabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN1
Port Tagging
UnTagged
Reset to Default
Save
Close

dumps



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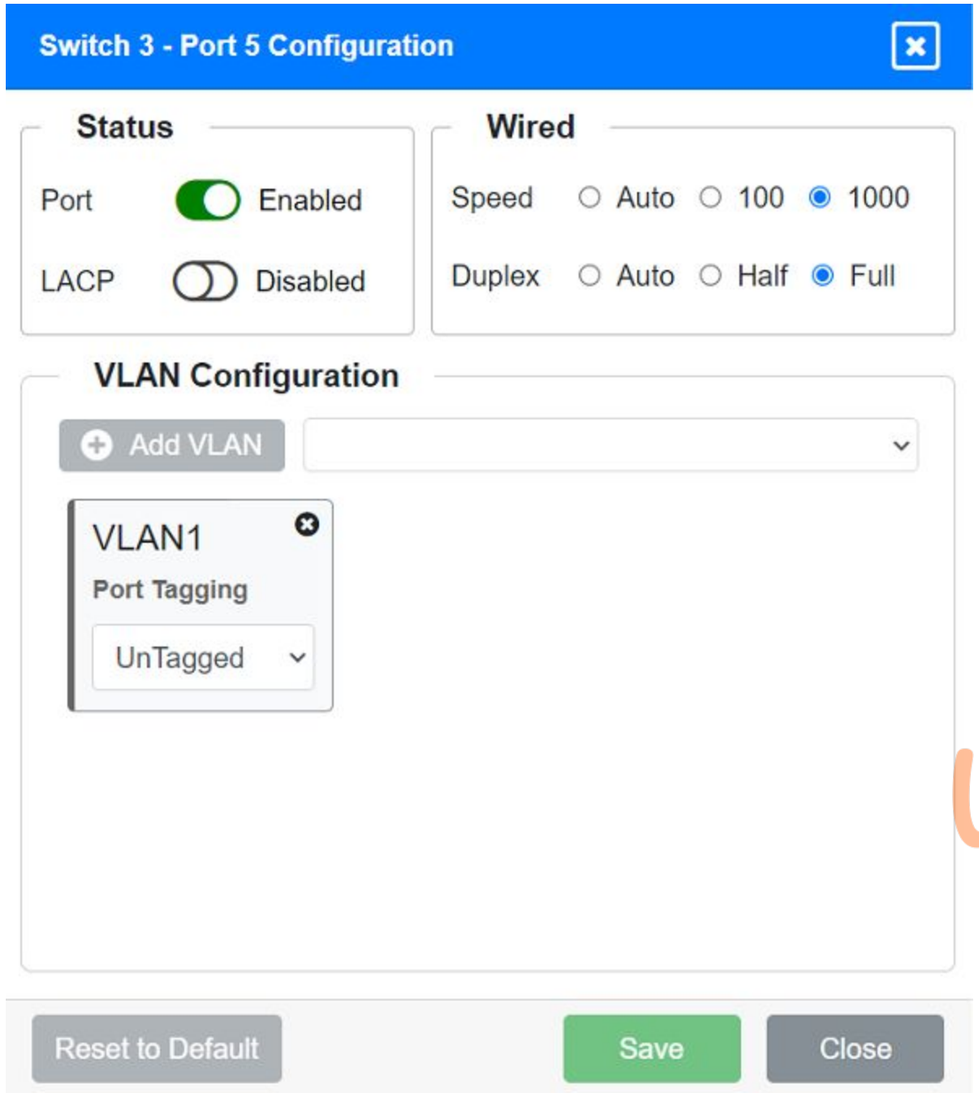
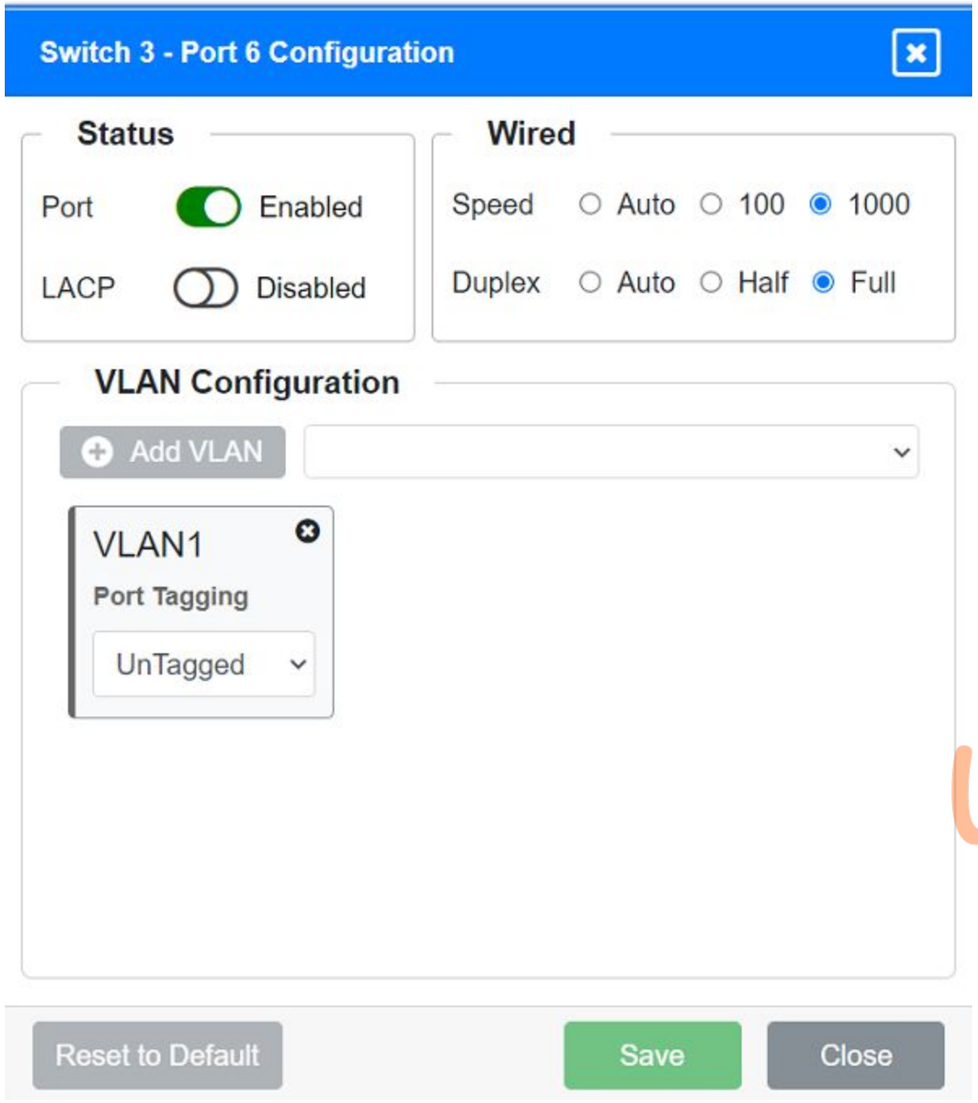
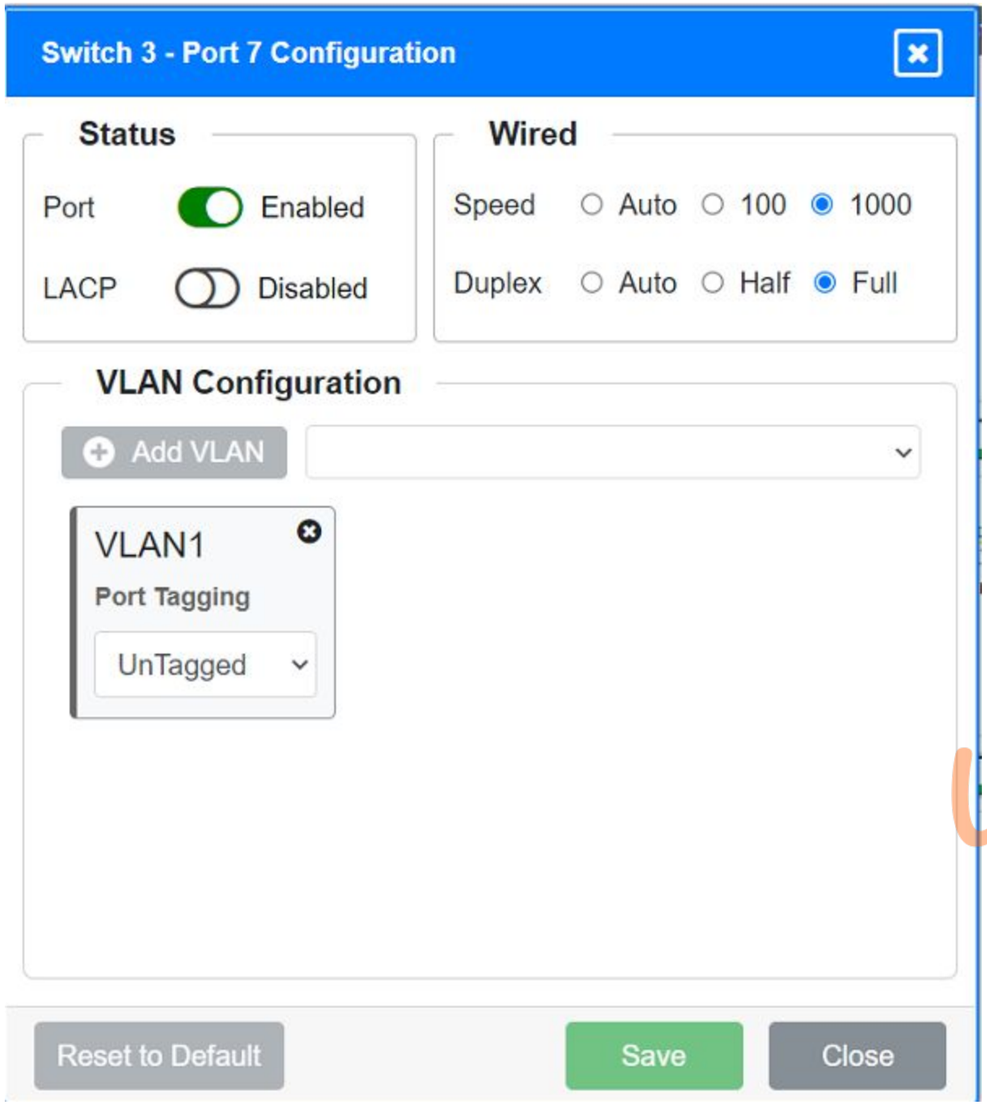

Switch 3 - Port 5 Configuration
Status
Port
Enabled
LACP
Disabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN1
Port Tagging
UnTagged
Reset to Default
Save
Close

dumps


Switch 3 - Port 6 Configuration
Status
Port
Enabled
LACP
Disabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN1
Port Tagging
UnTagged
Reset to Default
Save
Close

Vdumps



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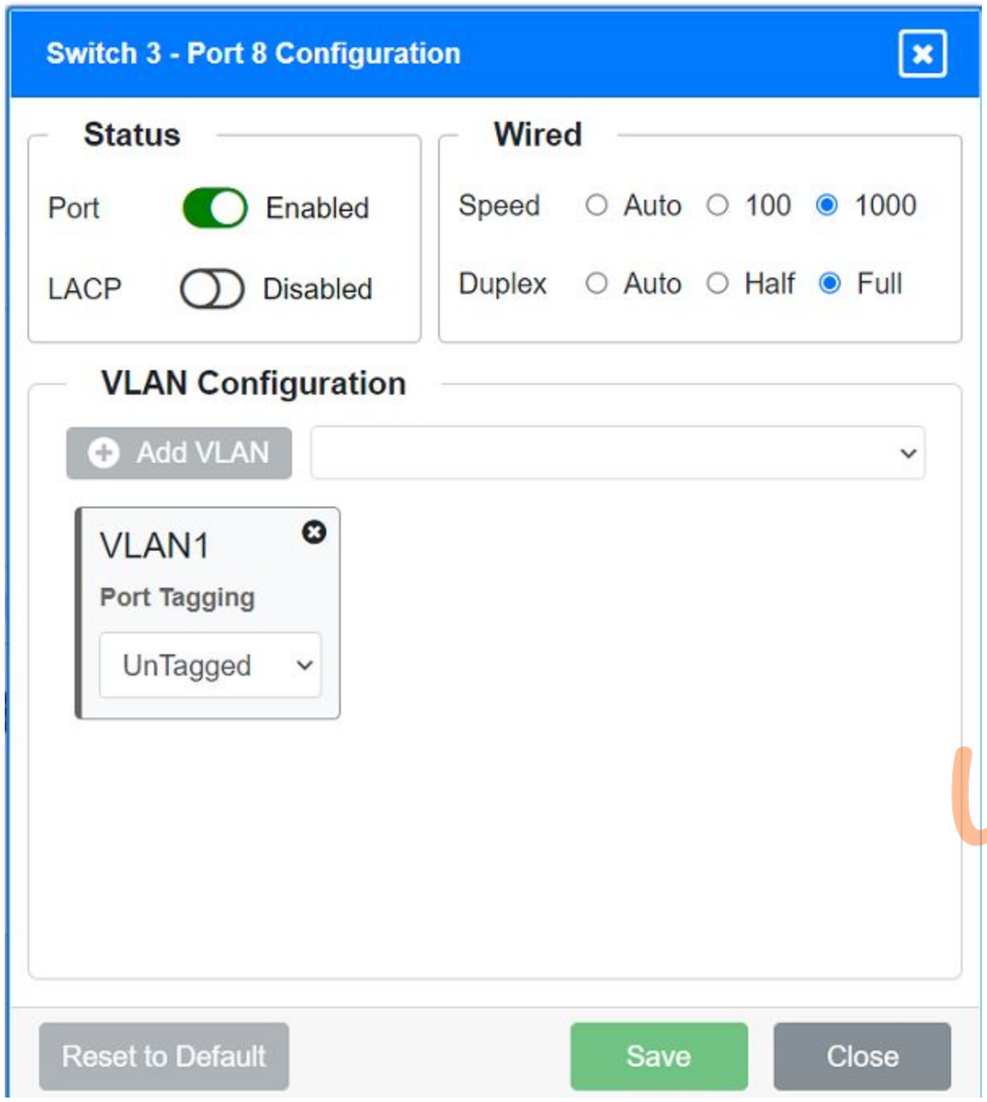
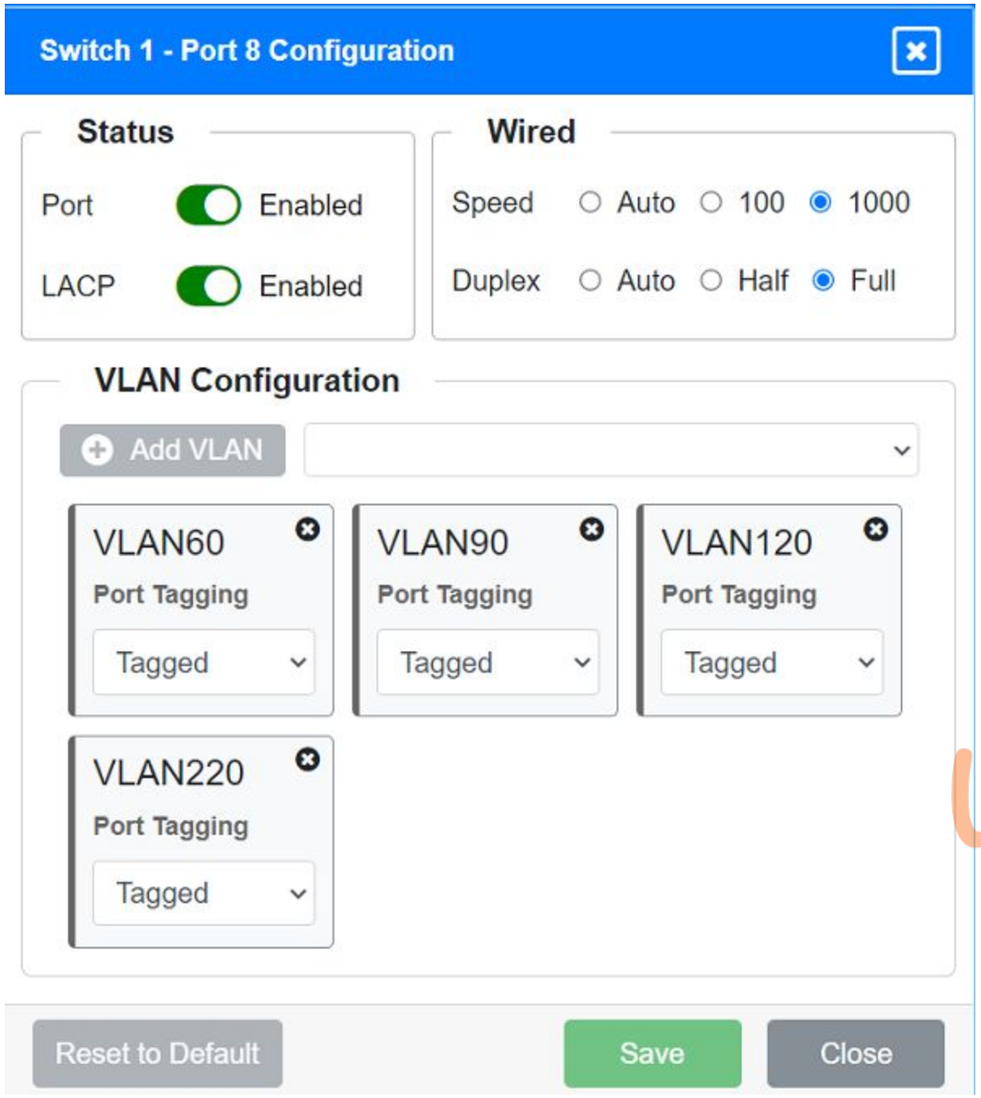

Switch 3 - Port 8 Configuration
Status
Port
Enabled
LACP
Disabled
Wired
Speed
Auto
100
1000
Duplex
Auto
Half
Full
VLAN Configuration
Add VLAN
VLAN1
Port Tagging
UnTagged
Reset to Default
Save
Close

Vdumps



A. See the solution below in Explanation

Correct Answer: A
Section:
Explanation:
To provide a complete solution for configuring the access layer switches, let's proceed with the following steps:
Identify the correct VLANs for each device and port.
Enable necessary ports and disable unused ports.
Configure fault-tolerant connections between the switches.
Configuration Details
Switch 1
Port 1 Configuration (Uplink to Core Switch)
Status: Enabled
LACP: Enabled
Speed: 1000

Duplex: Full
VLAN Configuration: Tagged for VLAN60, VLAN90, VLAN120, VLAN150, VLAN220
Port 2 Configuration (Uplink to Core Switch)
Status: Enabled
LACP: Enabled
Speed: 1000
Duplex: Full
VLAN Configuration: Tagged for VLAN60, VLAN90, VLAN120, VLAN150, VLAN220
Port 3 Configuration (Server Connection)
Status: Enabled
LACP: Disabled
Speed: 1000
Duplex: Full
VLAN Configuration: Untagged for VLAN90 (Servers)
Port 4 Configuration (Server Connection)
Status: Enabled
LACP: Disabled
Speed: 1000
Duplex: Full
VLAN Configuration: Untagged for VLAN90 (Servers)
Port 5 Configuration (Wired Users and WLAN)
Status: Enabled
LACP: Enabled
Speed: 1000
Duplex: Full
VLAN Configuration: Tagged for VLAN60, VLAN120, VLAN150
Port 6 Configuration (Wired Users and WLAN)
Status: Enabled
LACP: Enabled
Speed: 1000
Duplex: Full
VLAN Configuration: Tagged for VLAN60, VLAN120, VLAN150
Port 7 Configuration (Voice and Wired Users)
Status: Enabled
LACP: Enabled
Speed: 1000
Duplex: Full
VLAN Configuration: Tagged for VLAN60, VLAN90, VLAN120, VLAN220
Port 8 Configuration (Voice, Printers, and Wired Users)
Status: Enabled
LACP: Enabled
Speed: 1000
Duplex: Full
VLAN Configuration: Tagged for VLAN60, VLAN90, VLAN120, VLAN220
Switch 3
Port 1 Configuration (Unused)
Status: Disabled
LACP: Disabled
Port 2 Configuration (Unused)
Status: Disabled

LACP: Disabled
Port 3 Configuration (Connection to Device)
Status: Enabled
LACP: Disabled
Speed: 1000
Duplex: Full
VLAN Configuration: Untagged for VLAN1 (Default)
Port 4 Configuration (Connection to Device)
Status: Enabled
LACP: Disabled
Speed: 1000
Duplex: Full
VLAN Configuration: Untagged for VLAN1 (Default)
Port 5 Configuration (Connection to Device)
Status: Enabled
LACP: Disabled
Speed: 1000
Duplex: Full
VLAN Configuration: Untagged for VLAN1 (Default)
Port 6 Configuration (Connection to Device)
Status: Enabled
LACP: Disabled
Speed: 1000
Duplex: Full
VLAN Configuration: Untagged for VLAN1 (Default)
Port 7 Configuration (Connection to Device)
Status: Enabled
LACP: Disabled
Speed: 1000
Duplex: Full
VLAN Configuration: Untagged for VLAN1 (Default)
Summary of Configurations
Ports 1 and 2 on Switch 1 are configured as trunk ports with VLAN tagging enabled for all necessary VLANs.
Ports 3 and 4 on Switch 1 are configured for server connections with VLAN 90 untagged.
Ports 5, 6, 7, and 8 on Switch 1 are configured for devices needing access to multiple VLANs.
Unused ports on Switch 3 are disabled.
Ports 3, 4, 5, 6, and 7 on Switch 3 are enabled for default VLAN1.
Ensure All Switches and Ports are Configured as per the Requirements:
Core Switch Ports should be configured as needed for uplinks to Switch 1.
Ensure LACP is enabled for redundancy on trunk ports between switches.
By following these configurations, each device will access only its correctly associated network, unused switch ports will be disabled, and fault-tolerant connections will be established between the switches.

QUESTION 54
SIMULATION
Users are unable to access files on their department share located on file server 2.
The network administrator has been tasked with validating routing between networks hosting workstation A and file server 2.
INSTRUCTIONS
Click on each router to review output, identify any issues, and configure the appropriate solution.
If at any time you would like to bring back the initial state of the simulation, please click the Reset All button.

Router A

Routing Table | Routing Configuration

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, m - OMP
       n - NAT, Ni - NAT inside, No - NAT outside, Nd - NAT DIA
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       H - NHRP, G - NHRP registered, g - NHRP registration summary
       o - ODR, P - periodic downloaded static route, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

S*    0.0.0.0/0 is directly connected, GigabitEthernet3
      10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
C        10.0.4.0/22 is directly connected, GigabitEthernet2
C        10.0.6.0/24 is directly connected, GigabitEthernet2
L        10.0.6.1/32 is directly connected, GigabitEthernet2
      172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C        172.16.27.0/30 is directly connected, GigabitEthernet3
L        172.16.27.1/32 is directly connected, GigabitEthernet3
```

Reset to Default | Save | Close

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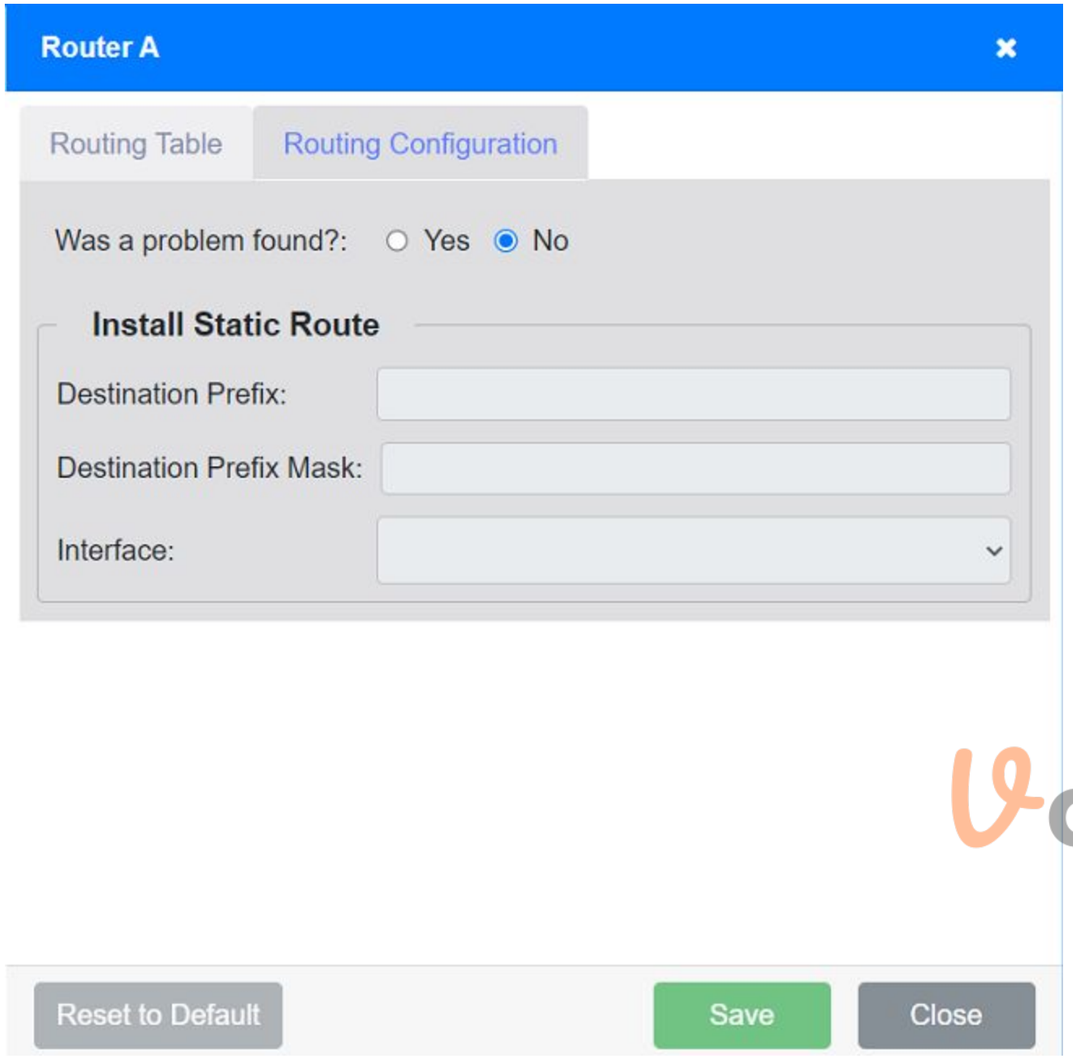
Router A
Routing Table
Routing Configuration
Was a problem found?:
Yes
No
Install Static Route
Destination Prefix:
Destination Prefix Mask:
Interface:
Reset to Default
Save
Close

Vdumps

Router C

Routing Table | Routing Configuration

```
Router-C# show ip route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, m - OMP
       n - NAT, Ni - NAT inside, No - NAT outside, Nd - NAT DIA
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       H - NHRP, G - NHRP registered, g - NHRP registration summary
       o - ODR, P - periodic downloaded static route, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR


      10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
S        10.0.0.0/22 [1/0] via GigabitEthernet1
S        10.0.4.0/22 [1/0] via GigabitEthernet2
      172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C        172.16.27.0/30 is directly connected, GigabitEthernet2
L        172.16.27.2/32 is directly connected, GigabitEthernet2
C        172.16.27.4/30 is directly connected, GigabitEthernet1
L        172.16.27.6/32 is directly connected, GigabitEthernet1
```

Reset to Default | Save | Close

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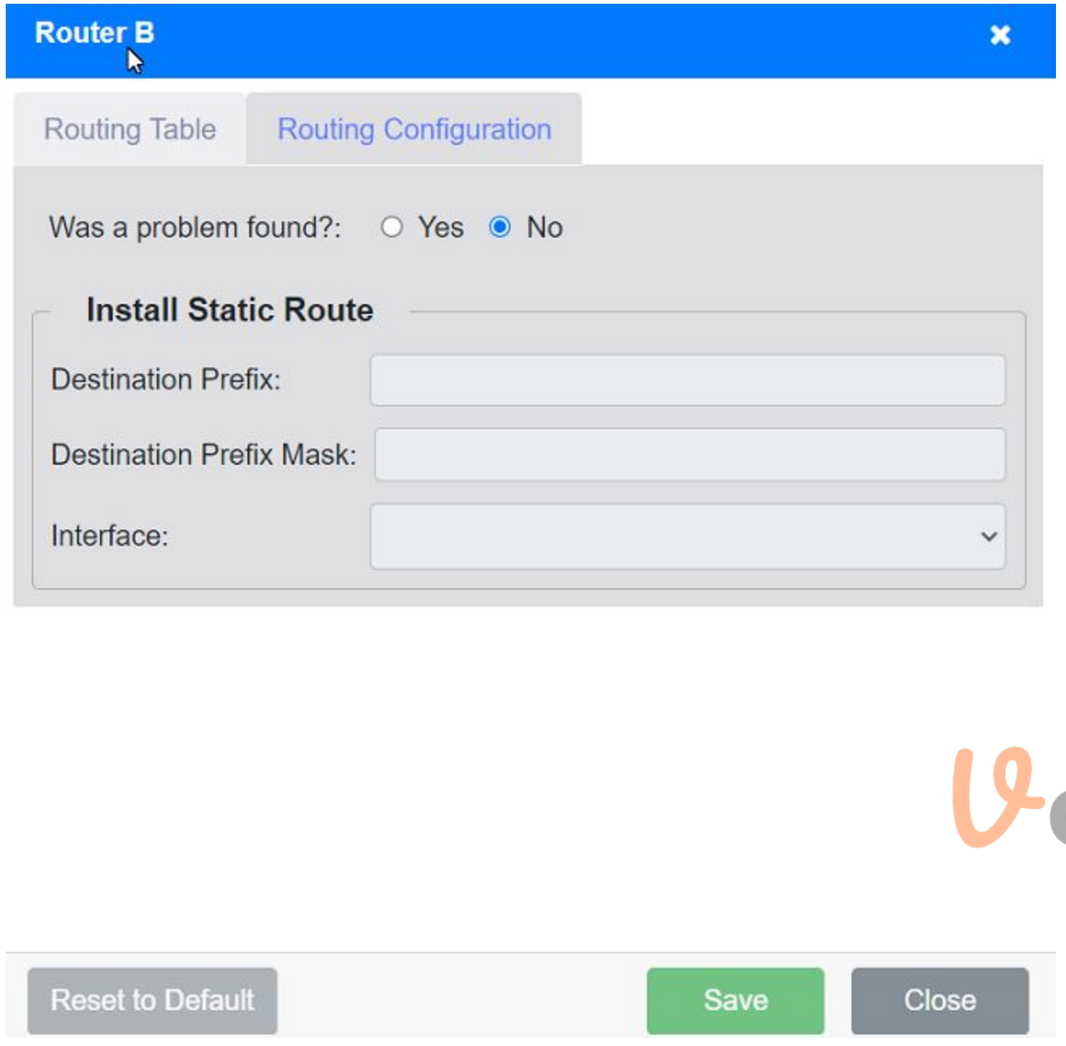
Router B

Routing Table | Routing Configuration

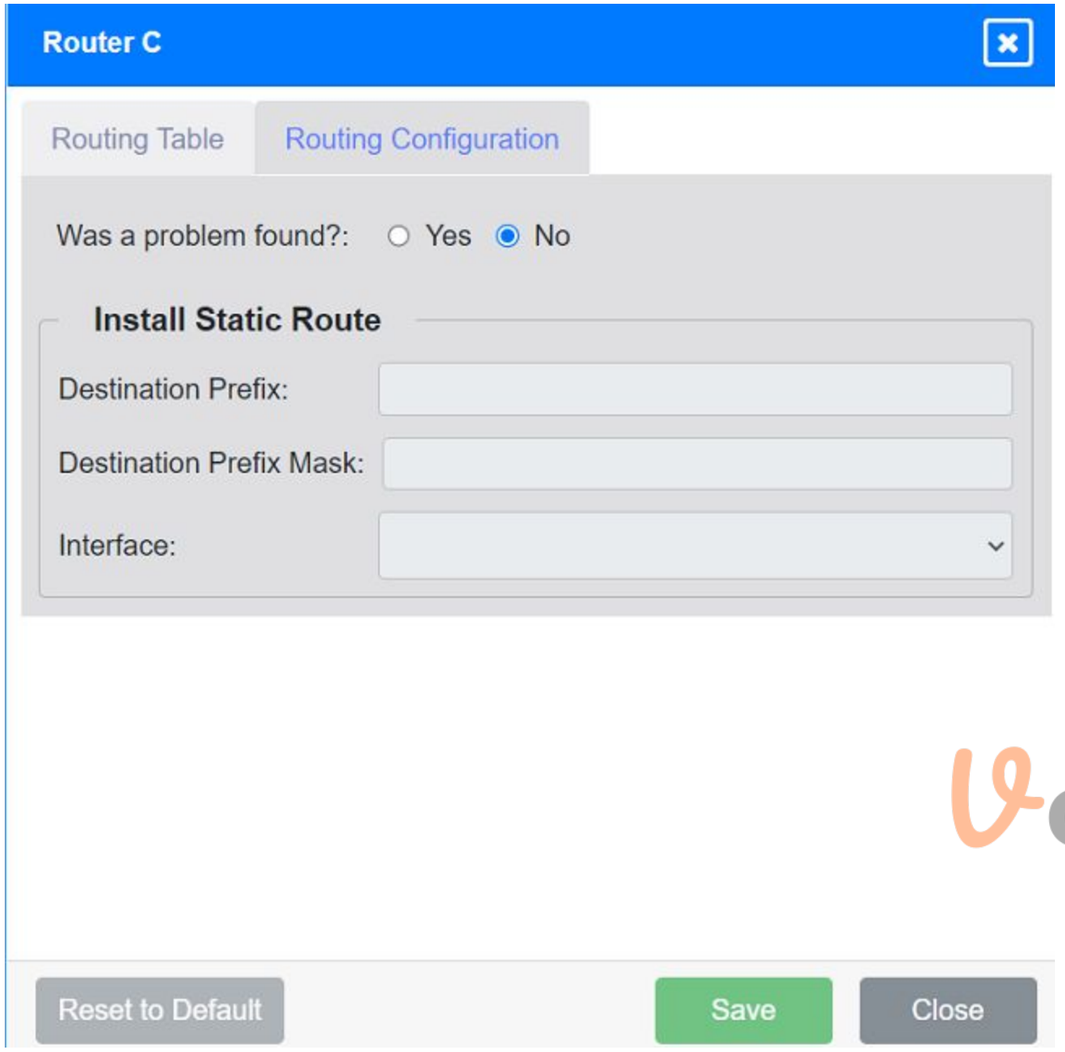
```
Router-B# show ip route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, m - OMP
       n - NAT, Ni - NAT inside, No - NAT outside, Nd - NAT DIA
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       H - NHRP, G - NHRP registered, g - NHRP registration summary
       o - ODR, P - periodic downloaded static route, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

S*    0.0.0.0/0 is directly connected, GigabitEthernet1
      10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
C        10.0.0.0/22 is directly connected, GigabitEthernet3
L        10.0.0.1/32 is directly connected, GigabitEthernet3
      172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C        172.16.27.4/30 is directly connected, GigabitEthernet1
L        172.16.27.5/32 is directly connected, GigabitEthernet1
```

Reset to Default | Save | Close

Vdumps


Router B
Routing Table
Routing Configuration
Was a problem found?:
Yes
No
Install Static Route
Destination Prefix:
Destination Prefix Mask:
Interface:
Reset to Default
Save
Close

dumps



A. See the solution in Explanation

Correct Answer: A
Section:
Explanation:
To validate routing between networks hosting Workstation A and File Server 2, follow these steps:
Step-by-Step Solution
Review Routing Tables:
Check the routing tables of Router A, Router B, and Router C to identify any missing routes.
Identify Missing Routes:
Ensure that each router has routes to the networks on which Workstation A and File Server 2 are located.
Add Static Routes:
If a route is missing, add a static route to the relevant destination network via the correct interface.
Detailed Analysis and Configuration
Router A:
Routing Table:

Gateway of last resort is 0.0.0.0 to network 0.0.0.0
S* 0.0.0.0/0 is directly connected, GigabitEthernet3
10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
C 10.0.4.0/22 is directly connected, GigabitEthernet2
C 10.0.6.0/24 is directly connected, GigabitEthernet2
L 10.0.6.1/32 is directly connected, GigabitEthernet2
172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C 172.16.27.0/30 is directly connected, GigabitEthernet3
L 172.16.27.1/32 is directly connected, GigabitEthernet3
Router B:
Routing Table:
Gateway of last resort is 0.0.0.0 to network 0.0.0.0
S* 0.0.0.0/0 is directly connected, GigabitEthernet1
10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
C 10.0.0.0/22 is directly connected, GigabitEthernet1
L 10.0.0.1/32 is directly connected, GigabitEthernet1
172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C 172.16.27.4/30 is directly connected, GigabitEthernet1
L 172.16.27.5/32 is directly connected, GigabitEthernet1
Router C:
Routing Table:
10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
S 10.0.0.0/22 [1/0] via GigabitEthernet1
S 10.0.4.0/22 [1/0] via GigabitEthernet2
172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C 172.16.27.0/30 is directly connected, GigabitEthernet2
L 172.16.27.2/32 is directly connected, GigabitEthernet2
C 172.16.27.4/30 is directly connected, GigabitEthernet1
L 172.16.27.6/32 is directly connected, GigabitEthernet1
Configuration Steps:
Router A:
Install Static Route to 10.0.0.0/22 via 172.16.27.1 (assuming Router C's IP is 172.16.27.1):
Destination Prefix: 10.0.0.0
Destination Prefix Mask: 255.255.252.0
Interface: GigabitEthernet3
Router B:
Install Static Route to 10.0.4.0/22 via 172.16.27.5 (assuming Router C's IP is 172.16.27.5):
Destination Prefix: 10.0.4.0
Destination Prefix Mask: 255.255.252.0
Interface: GigabitEthernet1
Router C:
Install Static Route to 10.0.6.0/24 via 172.16.27.2 (assuming Router A's IP is 172.16.27.2):
Destination Prefix: 10.0.6.0
Destination Prefix Mask: 255.255.255.0
Interface: GigabitEthernet2
Install Static Route to 10.0.0.0/22 via 172.16.27.1 (assuming Router B's IP is 172.16.27.1):
Destination Prefix: 10.0.0.0
Destination Prefix Mask: 255.255.252.0
Interface: GigabitEthernet1
Summary of Static Routes:

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Router A:
ip route 10.0.0.0 255.255.252.0 GigabitEthernet3
Router B:
ip route 10.0.4.0 255.255.252.0 GigabitEthernet1
Router C:
ip route 10.0.6.0 255.255.255.0 GigabitEthernet2
ip route 10.0.0.0 255.255.252.0 GigabitEthernet1
These configurations ensure that each router knows the correct paths to reach Workstation A and File Server 2, resolving the connectivity issue.

QUESTION 55
Which of the following requires network devices to be managed using a different set of IP addresses?

A. Console
B. Split tunnel
C. Jump box
D. Out of band

Correct Answer: D
Section:
Explanation:
Out-of-band (OOB) management refers to using a dedicated management network that is physically separate from the regular data network. This management network uses a different set of IP addresses to ensure that management traffic is isolated from user data traffic, providing a secure way to manage network devices even if the main network is down or compromised.
Reference: CompTIA Network+ study materials.

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QUESTION 56
Which of the following is most closely associated with a dedicated link to a cloud environment and may not include encryption?

A. Direct Connect
B. Internet gateway
C. Captive portal
D. VPN

Correct Answer: A
Section:
Explanation:
Direct Connect refers to a dedicated network connection between an on-premises network and a cloud service provider (such as AWS Direct Connect). This link bypasses the public internet, providing a more reliable and higher-bandwidth connection. It may not inherently include encryption because it relies on the security measures of the dedicated physical connection itself. In contrast, other options like VPN typically involve encryption as they traverse the public internet.
CompTIA Network+ full course material indicates that Direct Connect type services offer dedicated, private connections which might not include encryption due to the dedicated and secure nature of the link itself.