



SWITCHING LAB

LAB MATERIALS

- Peplink Router (8.5.0 or higher)
- Peplink Switch
- InControl2 Access
- Ethernet cables

**A limited number of lab kits will be provided for attendees to share. Recommended for attendees to bring their own materials, but not necessary.*

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STEP 1: CREATE VLANS

- Navigate to Organization/Group → Network Settings → VLAN Networks.
- Create two VLANs:
 - User VLAN
 - Name: User
 - VLAN ID: 200
 - IP: 192.168.200.1/24
 - Guest VLAN
 - Name: Guest
 - VLAN ID: 100
 - IP: 192.168.100.1/24
- Enable DHCP Server for each VLAN.

STEP 2: VERIFY VLANS

- Go to the Web Admin of the router.
- Confirm both VLANs appear with correct IPs.
- Ensure the port connecting the router to the switch is set to:
 - Port Type: Trunk
 - VLAN Networks: Any

STEP 3: EDIT SWITCH PORTS

- Go to Port Settings → Show Port List → Edit.
- Assign VLANs to ports:
 - Port 5: User VLAN (200)
 - Port 7: Guest VLAN (100)
- Set port types:
 - Access for end devices
 - Trunk for inter-switch/router connections
- Enable/disable:
 - Loop Protection
 - RSTP (Rapid Spanning Tree Protocol)

STEP 4: CONNECT DEVICE TO USER VLAN

- Plug a device into Port 5.
- Run ipconfig in Command Prompt.
- Confirm IP is in the 192.168.200.x range.

STEP 5: CONNECT DEVICE TO GUEST VLAN

- Plug a device into Port 7.
- Run ipconfig to confirm IP is in the 192.168.100.x range.
- Run ping tests:
 - From Guest: ping 192.168.200.1 → should fail
 - From User: ping 192.168.100.1 → should fail

STEP 6: CREATE SSID WITH VLAN TAGGING

- In InControl2, go to Organization-wide SSID Settings.
- Create a new SSID:
 - Name: Guest SSID
 - Security: WPA2/WPA3
 - Enable Layer 2 Isolation and Fast Transition
- Scroll to VLAN Settings and assign:
 - VLAN ID: 100 (Guest)

⚠ Note: VLAN tagging does not apply to AP One devices in router mode.

STEP 7: ENABLE DHCP & IGMP SNOOPING

- In Network Settings, enable:
 - DHCP Snooping – protects against rogue DHCP servers.
 - IGMP Snooping – optimizes multicast traffic.

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STEP 8: ENABLE LOOP PROTECTION & RSTP

- In Switch Settings, enable:
 - Loop Protection (Passive recommended)
 - RSTP (Set STP Bridge Priority if needed)
- Default STP priority: 32768

STEP 9: CONFIGURE ROUTING PROTOCOLS (OPTIONAL)

- Navigate to Advanced → OSPF/BGP.
- Advertise VLAN networks:
 - User VLAN: 192.168.200.1/24
- Configure:
 - OSPF Areas
 - BGP Profiles
 - Static Route Advertising

BEST PRACTICES & TIPS

- Document your VLAN assignments – Proper naming conventions, IP ranges, Subnets
- Plan IP addressing carefully – Leave room for growth
- Test connectivity at each step – Use ping tests after major configuration changes to verify functionality
- Use trunk ports correctly – Ensure ports connecting switches or APs are set to "Trunk" type with appropriate VLANs

TROUBLESHOOTING

- No connectivity? Check correct port assignment and VLAN configuration
- No IP address? Verify DHCP server is enabled for that VLAN
- VLANs missing? Ensure VLANs were created at the InControl2 level before assigning to ports
- Wireless issues? Verify SSID VLAN tagging matches VLAN ID
- Cross-VLAN communication? Check Layer 2 isolation and firewall rules