**How to set up a Virtual Network**

1. Pick your protocol
   1. Point-to-Point Tunneling Protocol (PPTP)
      1. Pro – every operating system supports it.
      2. Con – Least secure
   2. Layer 2 Tunneling Protocol (L2TP)
      1. Pro – more secure then PPTP
      2. Con – More complicated to set up and still deal with many of the same connection issues as the PPTP
   3. Secure Sockets Layer (SSL)
      1. Very secure – what banks and other secure domains use
      2. Web browser based
   4. OpenVPN
      1. Free and just as secure as SSL
      2. Requires a client to be installed and does not work on mobile
2. Setting up a simple VPN with Windows
   1. Windows comes with a built in client to connect securely to other Windows computers, but it only supports PPTP and L2TP
   2. Search for VPN in Windows Search, and then launch the VPN wizard when prompted
   3. If you want to connect to a commercial VPN, you must know the IP address of the network you are trying to connect to.
   4. If you are trying to run your own VPN, find your own IP address by search “ipconfig” in the command Prompt
3. Use a third party software to create a VPN server
   1. Used best when wanting to create a VPN between multiple computers to share files and resources without having to dedicate a PC to act as the VPN server or configure a router
   2. Examples of good third party VPN software
      1. Comodo Unite
      2. Gbridge
      3. TeamViewer
4. Purchase a VPN router
   1. Zyxel
   2. Cisco
   3. Netgear

**How to set up a VLAN**

1. Determine the IP addresses that you want to assign to the VLAN interfaces on the switch.
   1. For the switch to route between VLANs, the VLAN interfaces must have IP addresses. When the switch receives a packet that is destined for a VLAN or subnet, the switch forwards the packet to the destination VLAN interface  based on the information in the routing table. The destination VLAN interface forwards the packet to the port to which the end device is attached.
2. Open a web browser.
3. In the browser address field, type the IP address of the smart switch.
   1. The default IP address is 192.168.0.239 and the default subnet mask is 255.255.255.0.
4. Type the password in the **Password** field.
   1. The default password is **password**. Passwords are case-sensitive.
5. Click the Login button.
   1. After the system authenticates you, the System Information screen displays.
6. Select Routing>IP>IP Configuration.
7. Next to Routing Mode, select the Enable radio button.
8. Click the Apply button.
   1. Routing is now enabled.
9. Select Switching>VLAN>Basic > VLAN Configuration.
10. Create a static VLAN by specifying a VLAN ID and VLAN name, and, from the VLAN Type menu, selecting Static.
11. Click the Add button.
    1. The new VLAN is added to the configuration.
12. Select Routing> VLAN > VLAN Routing.
13. Enable routing on the VLAN that you just created and assign an IP address and subnet mask
    1. From the **VLAN** menu, select the VLAN that you just created.
    2. In the IP address field, type the IP address that you want to assign to the VLAN routing interface.
    3. In the Subnet Mask field, type the subnet mask that you want to assign to the VLAN routing interface.
    4. In the **IP MTU** field, type **1500**. 1500 is the default MTU size
14. Click the **Add** button.
    1. The VLAN routing interface is added to the configuration and becomes active.
15. Repeat steps 9—14 for all VLANs that you want to designate as VLAN routing interfaces.