Steps to Build a Secure Network For College:

Step 1:Design the outlines of the respective building(ENGG & ADMINISTRATIVE) and divide it into departments.

Step 2: Drag and drop a 2960-24TT Switch and a few PCs and connect them with a copper straight through cable.

Step 3: Now drag and drop a Packet Tracer Router (router pt) and connect it to the switch using a serial dce cable.

Step 4: Repeat Step 2-3 for rest departments.

Step 5: For the server room, drag and drop servers from the end devices category, and connect them to a 2960-24TT Switch and a pc.

Step 6: For admin department add a pc, printer and an IP phone to a switch and connect the switch to router.

Step 7: Add another router pt and modify it by adding a few more serial ports.

Step 8: Connect the routers from engg building to router pt.

Step 9: Configure every pc,router,server by giving them ip addresses,gateway addresses,networks and dns server address.

Step 10: connect the router pt of engg department and admin department to the router of server room.

Step 11: Give dns services to each ip gateways.

Step 12: Secure the network using port security.

Part 1: Configure Port Security

1. Access the command line for Switch and enable port security on Fast Ethernet ports 0/1- to the port number which is last to connect.
2. Set the switch port security to maximum so that only one device can access the Fast Ethernet ports 0/1 to the port number which is last to connect.
3. Use mac address sticky to Secure the ports so that the MAC address of a device is dynamically learned and added to the running configuration.
4. Set the violation mode so that the Fast Ethernet ports 0/1 and 0/2 are not disabled when a violation occurs.
5. Disable all the remaining unused ports. Use the range keyword to apply this configuration to all the ports simultaneously and then type “shutdown”.

Part 2: Verify Port Security

1. Verify that port security is enabled and the MAC addresses of PC1 and PC2 were added to the running configuration by using ”show run | begin interface”.
2. Use port-security show commands “show port-security” “show port-security address” to display configuration information.
3. Attach Rogue Laptop to any unused switch port and notice that the link lights are red.
4. Enable the port and verify that Rogue Laptop can ping PC1 and PC2. After verification, shut down the port connected to Rogue Laptop.
5. Disconnect PC2 and connect Rogue Laptop to F0/2, which is the port to which PC2 was originally connected. Verify that Rogue Laptop is unable to ping PC1.
6. Display the port security violations for the port to which Rogue Laptop is connected For ex: “show port-security interface f0/2”.
7. Disconnect Rouge Laptop and reconnect PC2. Verify PC2 can ping PC1.

Step 13: Repeat Step 12 for all the departments.

Step 14: END.

Screen Shots:



