Connecting to a Cisco Router or Switch:

Methods:

1. Console Connection
2. Telnet
3. SSH (Secure Shell)
4. Web Interface (for some devices)

Console Connection:

1. Connect a console cable (RJ-45 to DB-9 or USB) to the router/switch console port.
2. Use a terminal emulation program (e.g., HyperTerminal, PuTTY) on your computer.
3. Set baud rate to 9600, data bits to 8, parity to None, and stop bits to 1.
4. Power on the router/switch.

Telnet:

1. Ensure Telnet is enabled on the router/switch.
2. Open a Telnet client (e.g., Windows Command Prompt, PuTTY).
3. Enter the router/switch IP address and Telnet port (default: 23).
4. Log in with username and password.

SSH:

1. Ensure SSH is enabled on the router/switch.
2. Generate SSH keys (if required).
3. Open an SSH client (e.g., PuTTY, SecureCRT).
4. Enter the router/switch IP address and SSH port (default: 22).
5. Log in with username and password.

Web Interface:

1. Ensure the web interface is enabled on the router/switch.
2. Open a web browser.
3. Enter the router/switch IP address.
4. Log in with username and password.

Initial Configuration:

1. Set the enable secret password.
2. Configure the management IP address.
3. Set the default gateway (if necessary).
4. Save the configuration.

Cisco IOS Commands:

1. enable - Enter privileged mode.
2. configure terminal - Enter global configuration mode.
3. show running-config - Display current configuration.
4. write memory - Save configuration.

Physical Connection

1. Connect to the switch console port using a console cable (RJ-45 to DB-9 or USB).
2. Use a terminal emulation program (e.g., HyperTerminal, PuTTY).

Initial Configuration Steps

1. Power on the switch.
2. Press Enter to access the switch prompt.
3. Enter the enable command to access privileged mode.
4. Configure the switch hostname.
5. Set the enable secret password.
6. Configure the management IP address and subnet mask.
7. Set the default gateway (if necessary).
8. Configure VLANs (if necessary).
9. Save the configuration.

Basic Switch Configuration Commands

1. enable - Enter privileged mode.
2. configure terminal - Enter global configuration mode.
3. hostname <name> - Set switch hostname.
4. enable secret <password> - Set enable secret password.
5. ip address <address> <subnet_mask> - Set management IP address.
6. ip default-gateway <address> - Set default gateway.
7. vlan <vlan_id> - Create VLAN.
8. exit - Exit configuration mode.
9. write memory - Save configuration.

Additional Configuration Options

1. Configure switch ports (e.g., speed, duplex).
2. Configure Spanning Tree Protocol (STP).
3. Configure port security.
4. Configure link aggregation.

Verification Commands

1. show running-config - Display current configuration.
2. show ip interface brief - Display IP interface information.
3. show vlan - Display VLAN information.
4. show spanning-tree - Display STP information.

Router Initial Configuration:

Physical Connection

1. Connect to the router console port using a console cable (RJ-45 to DB-9 or USB).
2. Use a terminal emulation program (e.g., HyperTerminal, PuTTY).

Initial Configuration Steps

1. Power on the router.
2. Press Enter to access the router prompt.
3. Enter the enable command to access privileged mode.
4. Configure the router hostname.
5. Set the enable secret password.
6. Configure the management IP address and subnet mask.
7. Set the default gateway (if necessary).
8. Configure routing protocols (if necessary).
9. Save the configuration.

Basic Router Configuration Commands

1. enable - Enter privileged mode.
2. configure terminal - Enter global configuration mode.
3. hostname <name> - Set router hostname.
4. enable secret <password> - Set enable secret password.
5. ip address <address> <subnet_mask> - Set management IP address.
6. ip default-gateway <address> - Set default gateway.
7. router ospf <process_id> - Configure OSPF routing protocol.
8. network <network_id> - Configure network.
9. exit - Exit configuration mode.
10. write memory - Save configuration.

Additional Configuration Options

1. Configure router interfaces (e.g., Ethernet, Serial).
2. Configure routing protocols (e.g., RIP, EIGRP).
3. Configure access lists (ACLs).
4. Configure NAT/PAT.
5. Configure DHCP.

Verification Commands

1. show running-config - Display current configuration.
2. show ip interface brief - Display IP interface information.
3. show ip route - Display routing table.
4. show ospf neighbor - Display OSPF neighbors.

Practical Lab: