Configuring the IP Address

Before configuring the switch, you must identify the IP address, subnet mask, and default gateway on the switch:

```
RouterA(config)#ip address 10.1.5.22 255.255.255.0
RouterA (config)#ip default-gateway 10.1.5.44
```

Use the **no ip address** command to reset the IP address to the factory default of 0.0.0.0. Use the **no ip default-gateway** command to delete a configured default gateway and set the gateway address to the default value of 0.0.0.0.

The IP address, subnet mask, and default gateway settings can be viewed with the **show ip** command.

Duplexing

Duplexing is a mode of communication in which both ends can send and receive information. With full duplex, bidirectional communication can occur at the same time. Half duplex is also bidirectional, but signals can flow in only one direction at a time.

Half duplex:

- CSMA/CD susceptible to collisions
- Multipoint attachments
- Can connect with both half-duplex and full-duplex devices
- Efficiency is typically rated at 50 to 60 percent
- Nodes sharing their connection to a switch port must be in half-duplex mode

Full duplex:

- Can send and receive data at the same time
- Collision-free
- Point-to-point connection only
- Uses a dedicated switched port with separate circuits
- Efficiency is rated at 100 percent in both directions
- Both ends must be configured to run in full-duplex mode

Duplex Interface Configuration

The Catalyst 1900 can autonegotiate the duplex connection. This mode is enabled when both speed and duplex flags are set to auto. The **show interfaces** command shows the current settings.

```
duplex {auto | full | full-flow-control | half}
```

- **duplex auto**—Autonegotiation of duplex mode
- **duplex full-flow-control**—Full-duplex mode with flow control

Managing MAC Addresses

MAC address tables contain three types of addresses:

- Dynamic addresses are learned by the switch and then are dropped when they are not in use.
- Permanent and static addresses are assigned by an administrator.

MAC Address Configuration

The **mac-address-table** global configuration command is used to associate a MAC address with a particular switched port interface. The syntax for the **mac-address-table** command is

```
mac-address-table {permanent, restricted static} {mac-address type module/
port
  (src-if-list)}
```

You verify the MAC address table settings using the **show mac-address-table** command.

Note: The Catalyst 1900 can store a maximum of 1024 MAC addresses in its MAC address table. After the table is full, it floods all new addresses until one of the existing entries gets aged out.

- **mac-address-table permanent**—Sets a permanent MAC address
- **no mac-address-table permanent**—Deletes a permanent MAC address
- **mac-address-table restricted static**—Sets a restricted static address to an interface
- **no mac-address-table restricted static**—Deletes a restricted static address
- **Mac-address-table src-if-list**—Sets a restricted address to a port

Port References (Catalyst 1900)

Different commands refer to the same ports in different ways:

- The **show running config** output refers to e0/1 as interface Ethernet 0/1.
- The **show spantree output** refers to e0/1 as port Ethernet 0/1.
- The **show vlan-membership** output refers to e0/1 as port 1.