Default Routing

Usually, if a specific route to a particular network does not exist, a router will drop all traffic destined to that network. A default route, or gateway of last resort, allows traffic to be forwarded, even without a specific route to a particular network.

The default route is identified by all zeros in both the network and subnet mask (0.0.0.0 0.0.0.0). It is the least specific route possible, and thus will only be used if a more specific route does not exist (hence “gateway of last resort”).

To configure a default route:

```
Router(config)# ip route 0.0.0.0 0.0.0.0 172.17.1.2
```

It is possible to specify an entire default network on a Cisco device:

```
Router(config)# ip default-network 172.20.0.0
```

The 172.20.0.0 network must already exist in the routing table (either statically or dynamically), and will be marked as the gateway of last resort.

If IP routing is disabled on a Cisco IOS device, the following command will configure a default-gateway:

```
Router(config)# no ip routing
Router(config)# ip default-gateway 192.168.1.1
```

Essentially, the Cisco router will act as a host device, and will perform no routing functions on behalf of other hosts. The router will simply forward its own locally-originated traffic to the default-gateway, assuming that traffic is destined for a remote network.

It is possible to generate a default route in most routing protocols (RIP, OSPF, IS-IS, & BGP) using the default-information originate command:

```
Router(config)# router rip
Router(config-router)# default-information originate
```