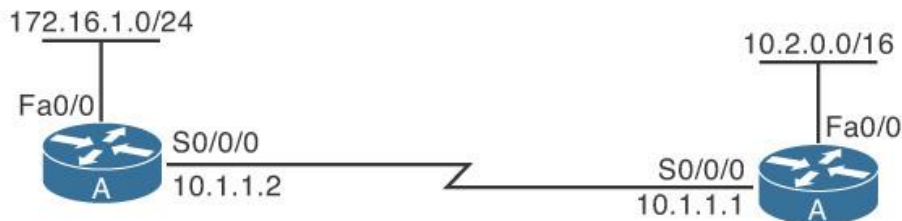


## Configure & Verify Static Routing:

- o When routers learn from a Network administrator, it is called a static routing.
- o In Static Routing administrator manually inputs all the routing table information.
- o Static route tells network devices about exact location & only work in small network.
- o In static routing, we must add all network locations manually or statically in router.
- o If any change occurs in the network, admin is responsible to update it in all routers.
- o Keep in mind, that a static route will have a default administrative distance (AD) of 1.
- o To keep route all time in Routing table, **permanent** keyword to end of route statement.
- o This keyword will keep the route in the table even if the router interface goes down.

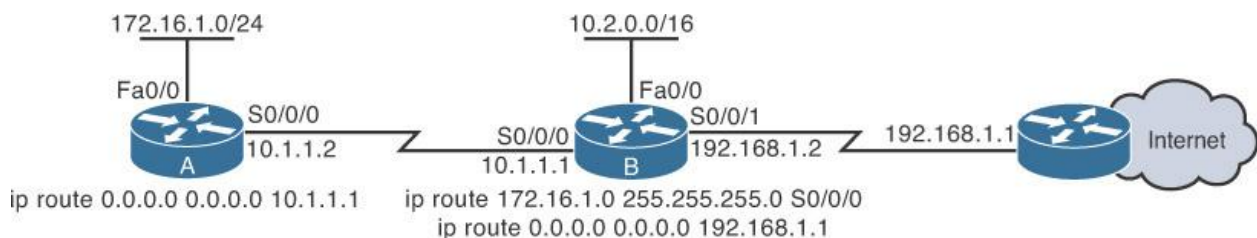


```
ip route 10.2.0.0 255.255.0.0 S0/0/0
```

```
ip route 172.16.1.0 255.255.255.0 10.1.1.2
```

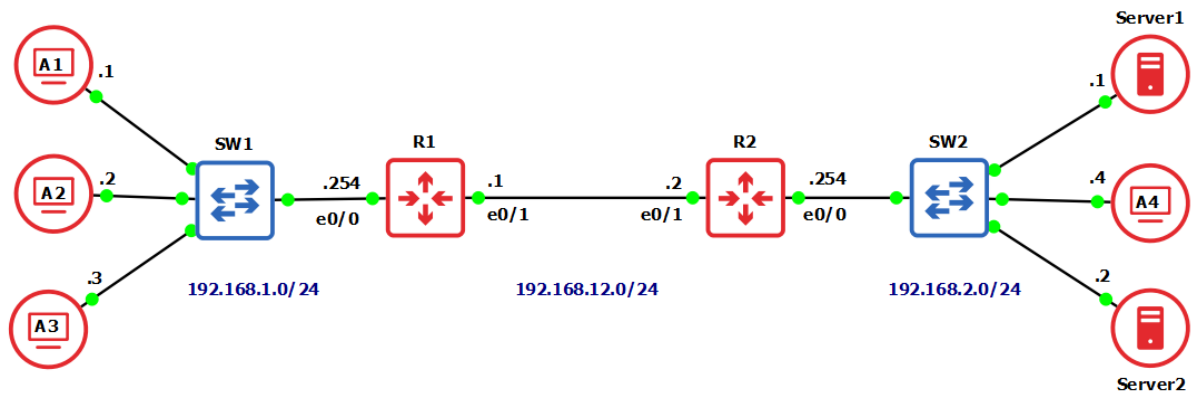
## Default Route:

- o A Default Route also known as the gateway of last resort is a special type of static route.
- o Default route is route that router uses to forward an incoming packet when no other route.
- o This is method where all routers are configured to send all packets towards a single router.
- o Where a static route specifies a path, a router should use to reach a specific destination.
- o Default route specifies a path router should use if it doesn't know how to reach destination.
- o Default Route is Network Route used by a router when there is no other known route exists.
- o Default Route is used by router when there is no other route for IP destination address.
- o All the Internet Protocol with unknown destination address are sent to the default route.
- o If no default route is set router will discard all packets with destination addresses not found.
- o This is very useful method for small networks or for networks with single entry & exit point.
- o All zero (0.0.0.0) in network portion and subnet mask represent all networks and all hosts.
- o A default route configured by the "IP Route" command is called the default static route.



```
ip route 0.0.0.0 0.0.0.0 10.1.1.1
```

```
ip route 172.16.1.0 255.255.255.0 S0/0/0  
ip route 0.0.0.0 0.0.0.0 192.168.1.1
```



### Configure & Verify Static Routing

```

R1(config)# ip route 0.0.0.0 0.0.0.0 192.168.12.2
R1(config)# ip route 0.0.0.0 0.0.0.0 ethernet0/1
R1(config)# ip route 192.168.2.0 255.55.255.0 192.168.12.2
R1(config)# ip route 192.168.2.0 255.55.255.0 ethernet 0/1
R1(config)# ip route 192.168.2.1 255.55.255.255 192.168.12.2
R1(config)# ip route 2.0.0.0 255.0.0.0 192.168.12.2
R1(config)# ip route 2.0.0.0 255.0.0.0 192.168.21.2 5
R1(config)# ip route 0.0.0.0 0.0.0.0 192.168.12.2
R1(config)# ip route 0.0.0.0 0.0.0.0 192.168.21.2 5
R1# show ip route
R1# show ip route connected
R1# show ip route static
R1# show ip route 2.2.2.2
R1# show ip route 192.168.2.0

```