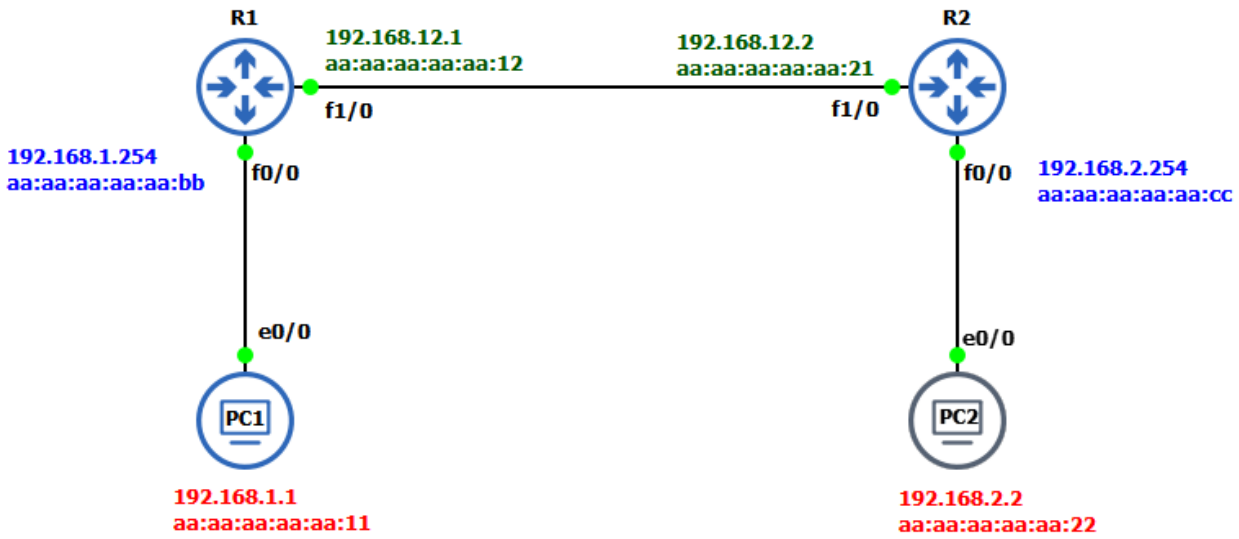
IP Routing:



The PC1 host has a Simple Steps to Make.

- Is the destination on the local subnet.
- Check ARP table for destination IP address, if empty, send an ARP request.
- Is the destination on a remote subnet.
- Check ARP table for default gateway IP address, if empty, send an ARP request.

Source: aaaa:aaaa:aa11	Destination: aaaa:aaaa:aabb	Source: 192.168.1.1	Destination: 192.168.2.2

The Router has to Perform a Number of Tasks:

- When it receives an Ethernet frame, check if the FCS is correct. If not, drop the frame.
- Check if the destination address of the frame is:
- Destined to our MAC address.
- Destined to a broadcast address of the subnet our interface is in.
- Destined to a multicast address that we listen to.
- De-encapsulate the IP packet from the frame, discard the Ethernet frame.
- Look for a match in the routing table for the destination IP address.
- Figure out what the Outgoing interface and optionally, the next hop IP address is.
- Decrease the TTL (Time to Live) field in the IP header, recalculate the header checksum.
- Encapsulate the IP packet in a new Ethernet frame.
- Check the ARP table for the destination IP address or next hop IP address.
- Transmit the frame.

Source: aaaa:aaaa:aa12	Destination: aaaa:aaaa:aa21	Source: 192.168.1.1	Destination: 192.168.2.2