

BGP Router 1

192.168.1.201

BGP Router 2

192.168.1.73

# BGP router peering and route updates

This message flow shows how two BGP routers:

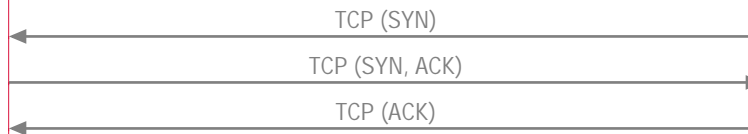
- (1) Peer by establishing a TCP connection and exchanging BGP OPEN messages.
- (2) Exchange Keep Alive messages to ensure that the routers are reachable.
- (3) Exchange routes using BGP UPDATE messages.
- (4) Release the BGP connection on operator command.

All messages in this sequence diagram may be clicked to see complete field level details of every BGP message.

Generated with EventStudio (<http://www.eventhelix.com/eventstudio/>) and VisualEther (<http://www.eventhelix.com/visualether/>)

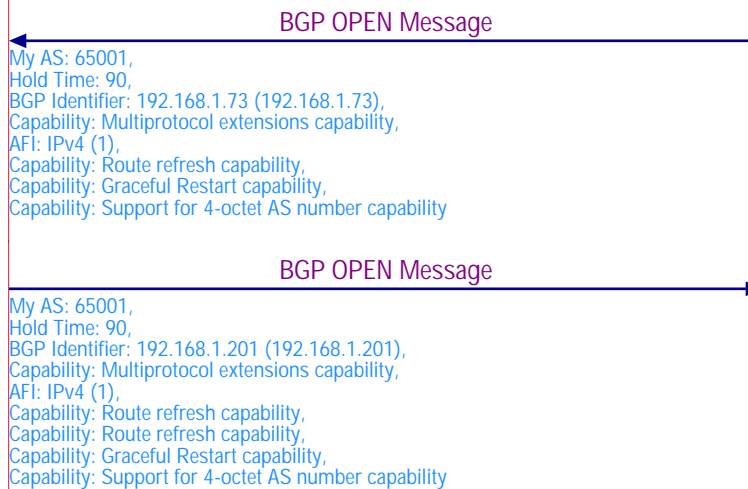
BGP peering starts with establishing a TCP connection

BGP is the only routing protocol that is carried over TCP. Thus the BGP peering process starts with establishing a TCP connection with the 3-way handshake.



Open the BGP Connection

Once the TCP connection is established, the routers exchange the BGP OPEN messages. The BGP Open messages are used to exchange information about the router capability. Click on the BGP Open messages to see the full list of capabilities that are exchanged between the routers.



Periodic BGP peering check with 'Keep Alive' messages

BGP peers periodically exchange the keep alive messages to confirm that the peering relationship is active.



Exchanging delta routing updates with 'BGP Update' messages

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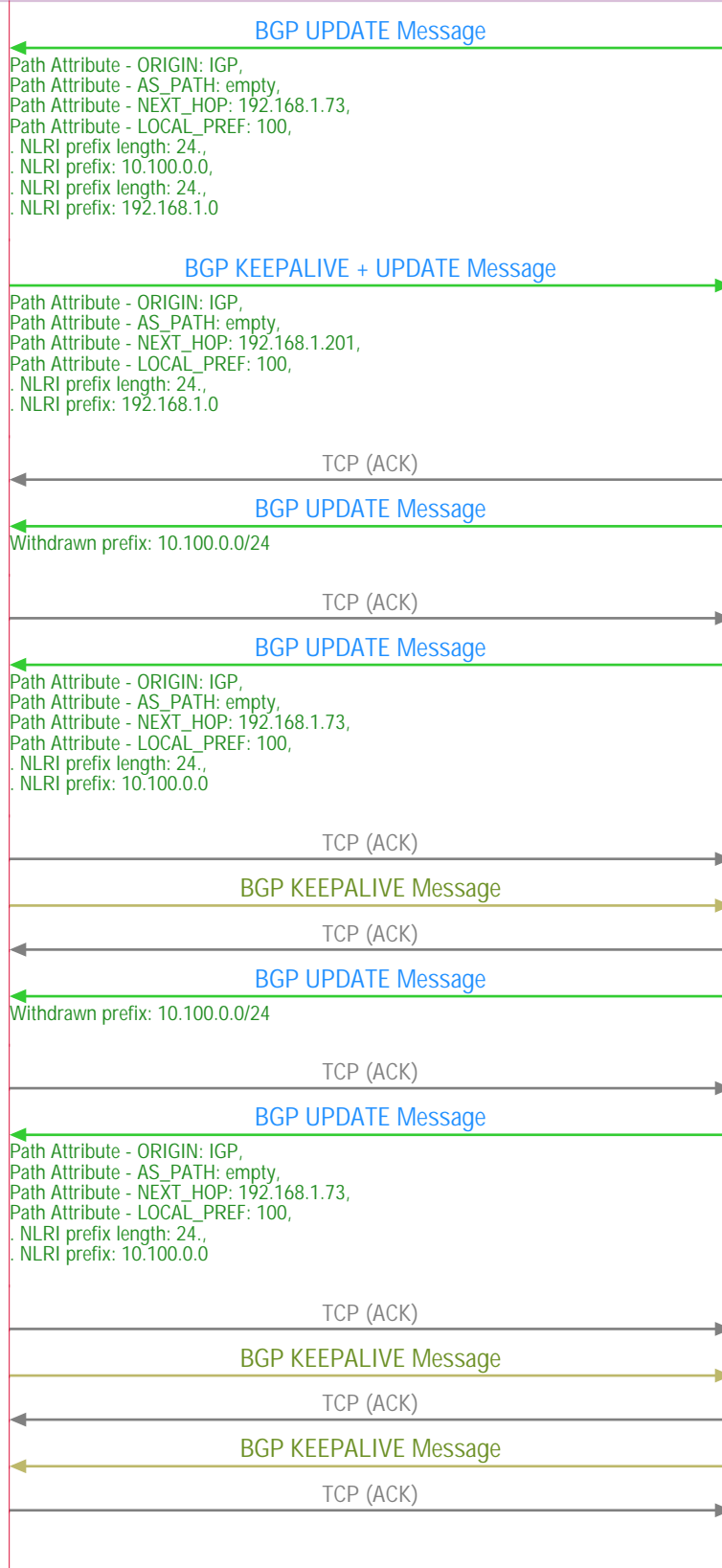
BGP Router 2

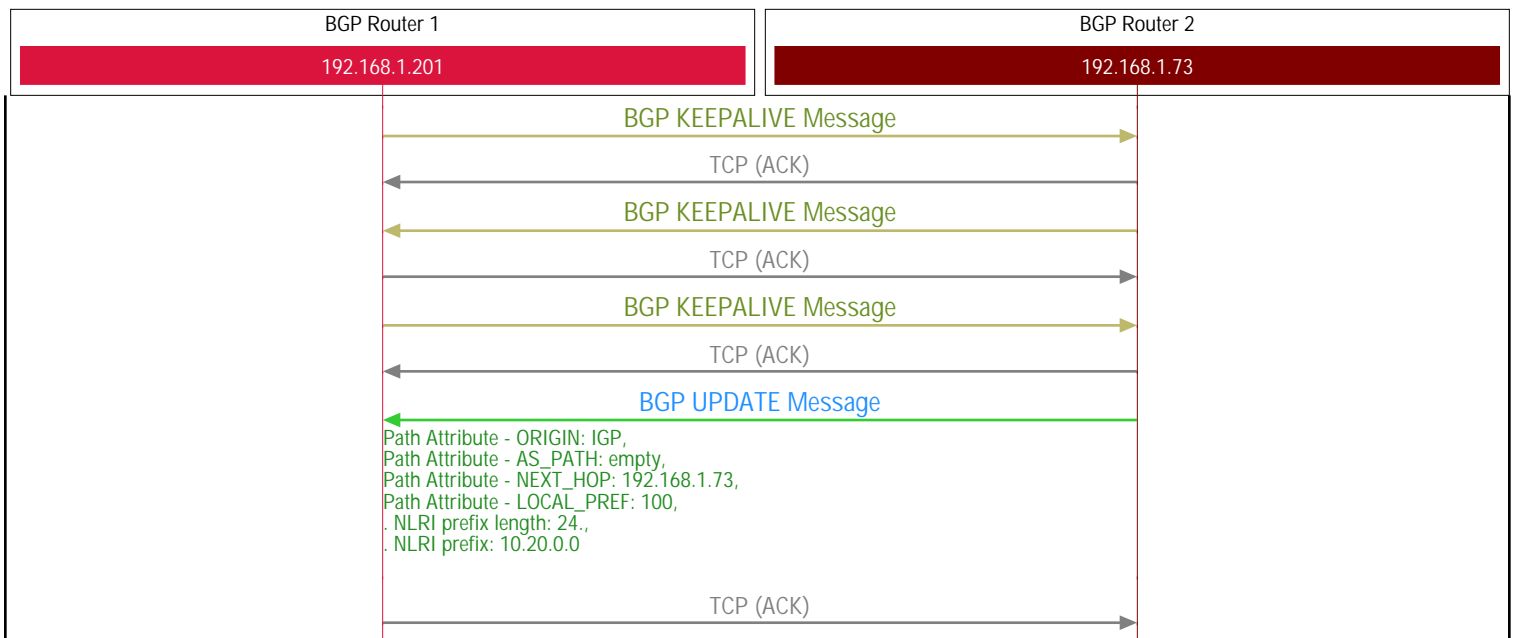
192.168.1.73

The routing tables exchanged on the Internet may have close of half a million entries. BGP is designed to scale to handle routing on this scale.

BGP exchanges UPDATE messages to advertise routing information. After startup, the first few BGP UPDATE messages carry the complete routing table. Once the routing tables are updated, all future updates are just sent as delta updates. Only the entries that are changing are sent in subsequent UPDATE messages.

Click on the BGP UPDATE messages to see the richness and power of BGP routing. Click on BGP KEEPALIVE + UPDATE message to see how BGP can carry two messages in a single TCP message.

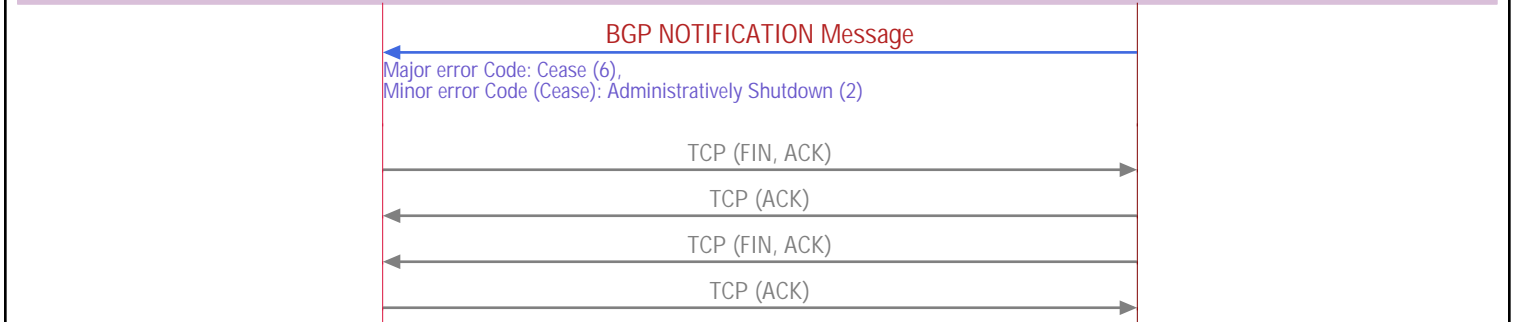




### Releasing the BGP connection on operator shutdown

BGP connection release may be triggered by any of the peering router. In this scenario, the operator shuts down Router 2. Router 2 notifies Router 1 with the BGP NOTIFICATION message.

Router 1 initiates the release of the TCP connection. This is followed by Router 2 also releasing the TCP connection.



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