1. What is the purpose of setting the TTL in the beacon code?

Setting the TTL in the server code is to prevent the server from sending the messages outside of network.

1. Does the beacon know how many clients have joined the multicast group it is using

The server does not know how many clients are connected to it, just sends the message to clients who are connected to it.

1. Can a client determine the IP address of the beacon?

The client cannot determine the IP of the beacon

1. Can a client determine the IP addresses of other clients of the same multicast group?

A client cannot determine the IP address of another client in the same multicast group.

1. Log into the router at 10.1.2.1 to answer the remaining questions. Is this router using Sparse Mode or Dense Mode?

The router is using Sparse mode.

1. Run the command “show ip igmp gr.” Which multicast groups do you see? Group 224.0.1.40
2. Now, run your beacon and two instances of your client on the same nodes you used for testing. What does the output of “show ip igmp gr” show now?
3. While the programs are running, what does the command “show ip mroute” show?