Overview:
In this experiment you will learn how to set up static routing with the *route* command. We will use the following network topology for this experiment:

![GENI topology with 3 nodes (VMs), and every node has two network interfaces (i.e. IP addresses).](image)

Figure 1: GENI topology with 3 nodes (VMs), and every node has two network interfaces (i.e. IP addresses).

Tools:
- **The route Linux command** – see https://www.hscripts.com/tutorials/linux-commands/route.html or type `man route`
- **The traceroute Linux command** – type `man traceroute`

1. Setup the Topology:
1) Login to the GENI Portal, and create a slice (you may refer to the GENI Intro Lab).

2) Reserve resources as shown in Figure 1 from one of the following InstaGENI aggregates:
   a) Utah InstaGENI
   b) GPO InstaGENI
   c) Georgia Tech InstaGENI
   d) Illinois InstaGENI
   e) NYU InstaGENI
   f) Kentucky InstaGENI
   g) Clemson InstaGENI

**Action:**
Find the IP address for each network interface (i.e. a1, a2, b1, b2, c1, c2 as shown in Figure 1). Remember that you can use “ifconfig” to determine which Ethernet interface (e.g., eth0) is bound to what IP address at each of the nodes.

2. Setup the Routing:

The goal of this exercise is to setup the routing for the topology shown in Figure 1 so that packets from node A sent to IP address b2 on node B should be routed via node C. In order to create this routing behavior you will need to modify the routing tables in your nodes using the `route` Linux command.

**Questions:**
(1) What happens when you traceroute from A to IP address b2 before you setup the static routes? Why?
Include the output of traceroute in your write-up.

(2) Setup the routing from A to b2 so that it goes through C. Was it enough to just modify the routing tables? What else did you need to change in order for the traffic to flow? Ensure that you have connectivity by running a ping from A to b2.

In your write-up include all the commands you ran and a screenshot of the routing configuration.

(3) What happens when you traceroute from A to IP address b2 after you setup the static routes?

In your write-up include a screenshot of the traceroute output.

3. Delete Resources:

After you are done with the exercise and you have captured everything requested for the write-up, you should delete and release your resources so that other experimenters can use them.

What to hand in:

• List of the IP addresses of each interface, i.e. a1, a2, b1, b2, c1, c2.
• Answers to Questions (1) –(3) above.