

1. You are given the virtual network in Fig. 1. This network has two subnets, and one node common to both these subnets. Your first exercise is to write a simple packet sniffer at node

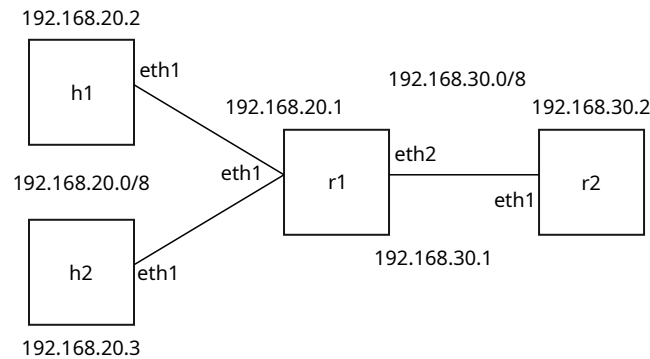


Figure 1: A network with 2 subnets.

- r1.** This packet sniffer should print the MAC addresses (source and destination), IP addresses (source and destination) of all IP packets sent and received by **r1**. Refer <https://www.binarytides.com/raw-sockets-c-code-linux/> and <http://squidarth.com/networking/systems/rc/2018/05/28/using-raw-sockets.html> [50]
2. Modify the packet sniffer in the previous exercise to print the MAC addresses (source and destination), IP addresses (source and destination) of only those IP packets that are received by **r1** on interface *eth1*. [20]
3. Enhance the program created in the previous exercise so that you transfer IP packets across the subnets in Fig. 1. Infact, you will essentially be building a rudimentary router. Some hints can be found at <https://opensourceforu.com/2015/03/a-guide-to-using-raw-sockets/> [30]