Reverse Address Resolution Protocol

Introduction:

Reverse Address Resolution Protocol (RARP) is a networking protocol used to obtain an IP address from a known MAC address. Unlike ARP, which resolves IP addresses to MAC addresses, RARP resolves MAC addresses to IP addresses. RARP is primarily utilized in diskless workstation environments where devices need an IP address to boot and initialize network services.

Aim and Objective:

The aim of RARP is to enable diskless workstations or devices without pre-configured IP addresses to obtain their IP addresses dynamically based on their MAC addresses. The objectives of RARP include:

- Dynamic IP Address Assignment: RARP aims to dynamically assign IP addresses to devices based on their MAC addresses, simplifying network administration and configuration management.

- Bootstrapping: RARP facilitates the bootstrapping process for diskless workstations by providing them with the necessary IP configuration information to initialize network services and communicate on the network.

Steps Involved in Reverse Address Resolution Protocol:

- RARP Request: A diskless workstation sends a broadcast RARP request packet onto the network, containing its MAC address and indicating its need for an IP address.

- RARP Server Response: A RARP server on the network receives the broadcast RARP request and checks its configuration database for the MAC address. Once found, the RARP server responds with a unicast RARP reply packet containing the corresponding IP address for the requesting MAC address.

- IP Configuration: Upon receiving the RARP reply packet, the diskless workstation configures its network interface with the assigned IP address, subnet mask, default gateway, and other network parameters included in the RARP reply.

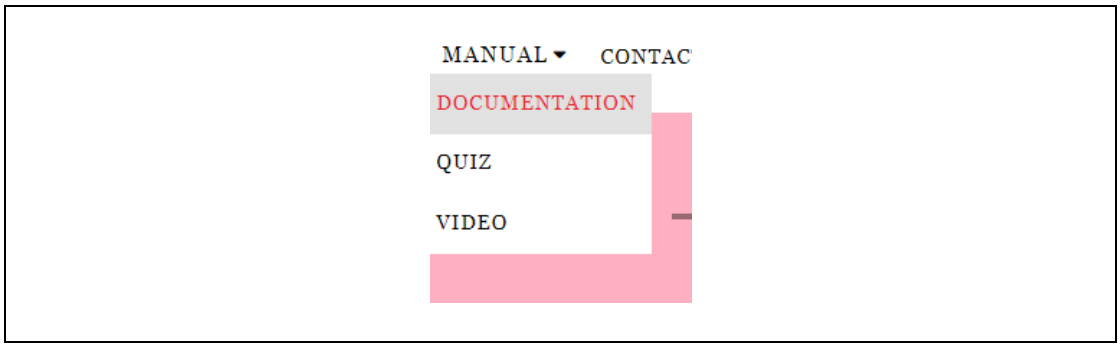
- Network Communication: With the IP address configured, the diskless workstation can now participate in network communication, including the ability to boot from a remote server, access network resources, and perform other network-related tasks.

Conclusion:

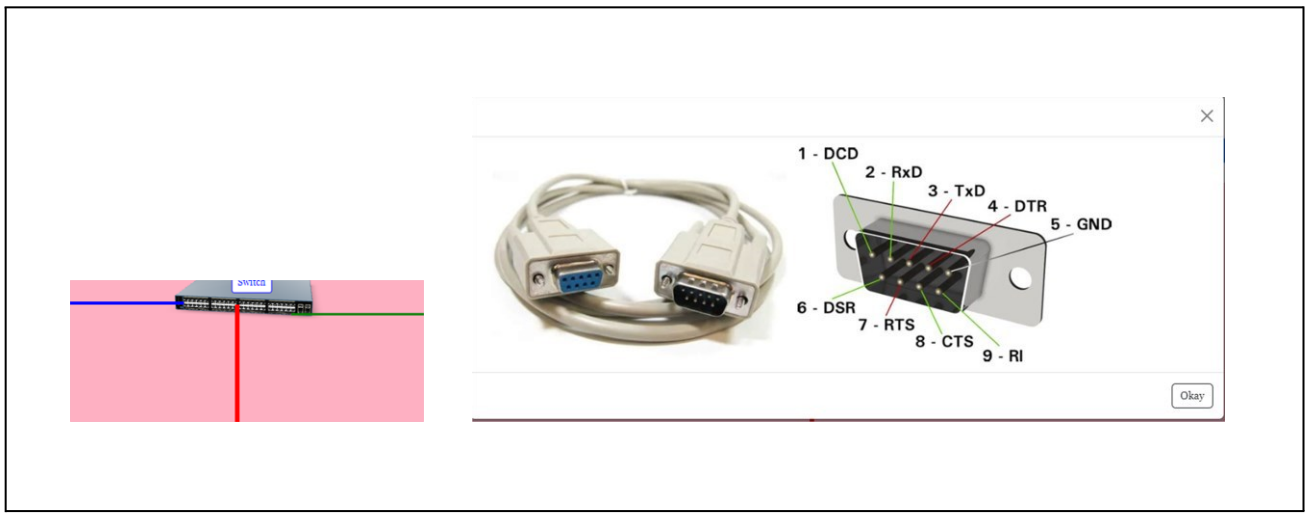
Reverse Address Resolution Protocol (RARP) provides a mechanism for diskless workstations and devices without pre-configured IP addresses to obtain their IP configuration dynamically based on their MAC addresses. By enabling dynamic IP address assignment, RARP simplifies network administration and facilitates the bootstrapping process for devices operating in diskless environments. While RARP has been largely replaced by more advanced protocols like DHCP (Dynamic Host Configuration Protocol), it remains a fundamental concept in understanding network address assignment mechanisms.

1. If you want know MAC Address of any PC you can click on blue square as shown below:

2. Click on “Manual” to view Presentation on RARP topic:

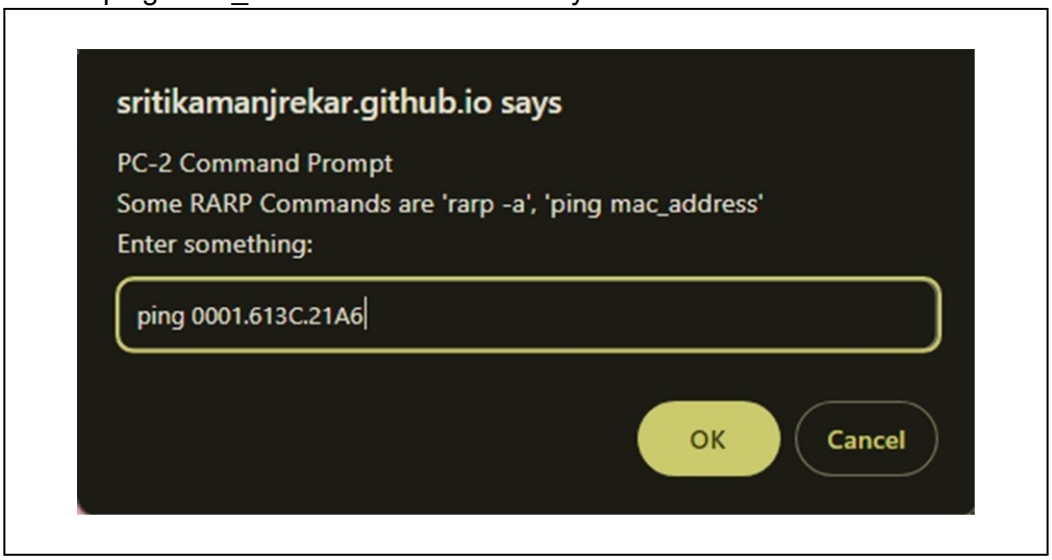


3. Click on wire colors “Red”/” Blue”/” Green” to view wire details:



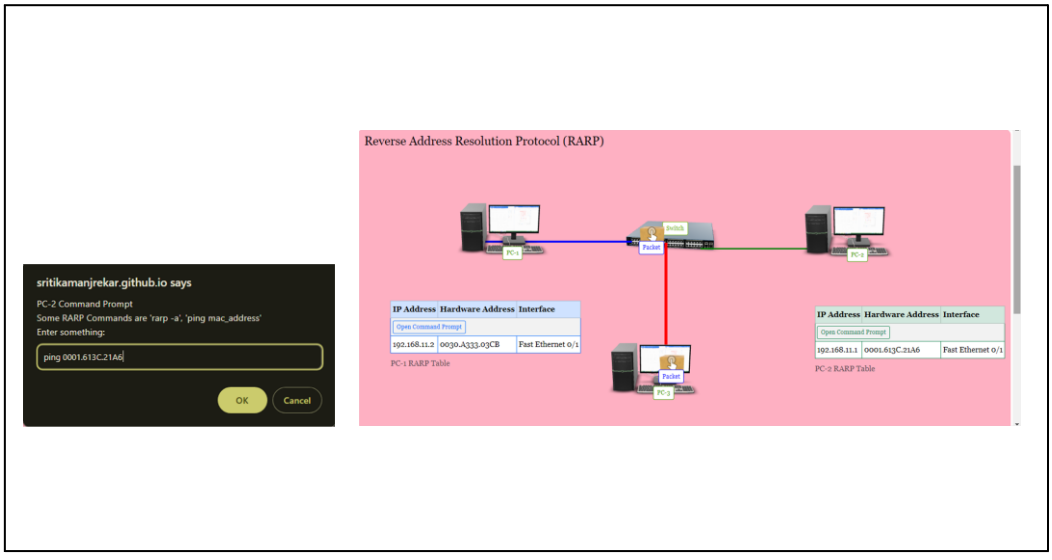
4. Let’s start performing RARP in AR World!!! Click on “Open Command Prompt” button of any PC:

5. Enter “ping MAC_Address” of PC of which you want to know IP Address

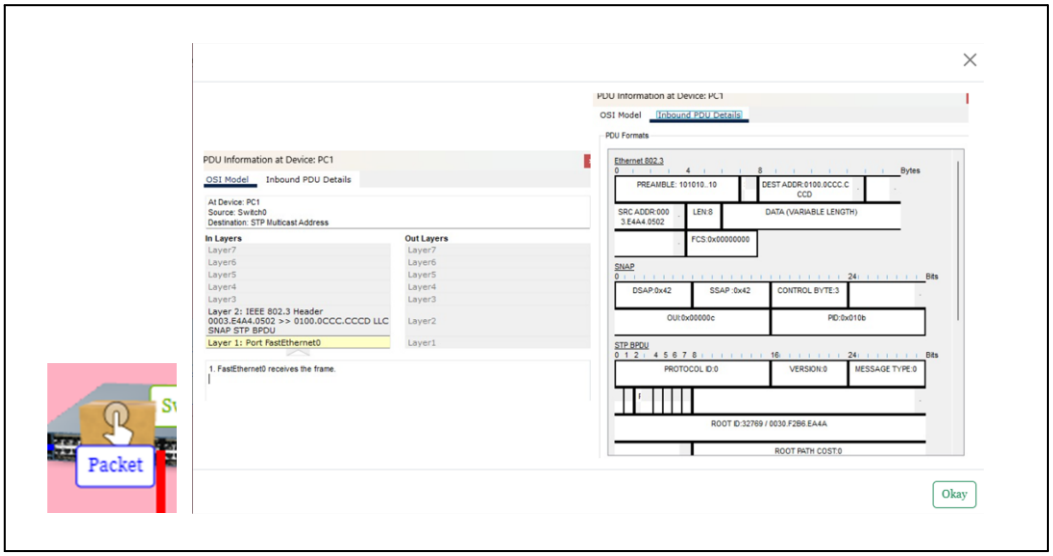


6. For now let’s enter MAC Address of PC-1 which is 0001.613C.21A6

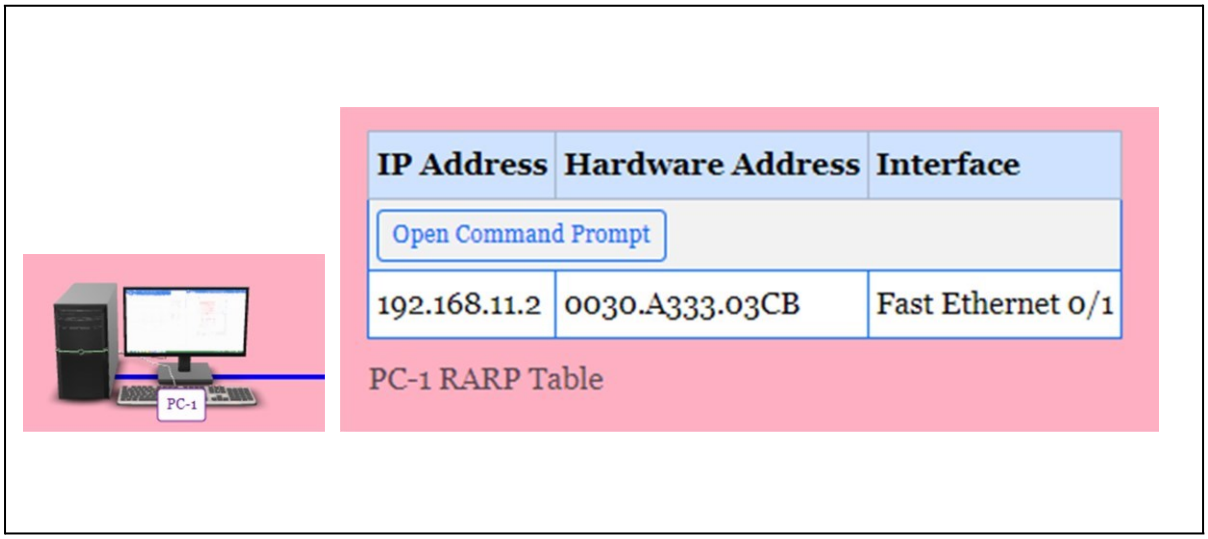
7. Now Click on OK then the magic AR World will begin the packet will start simulating



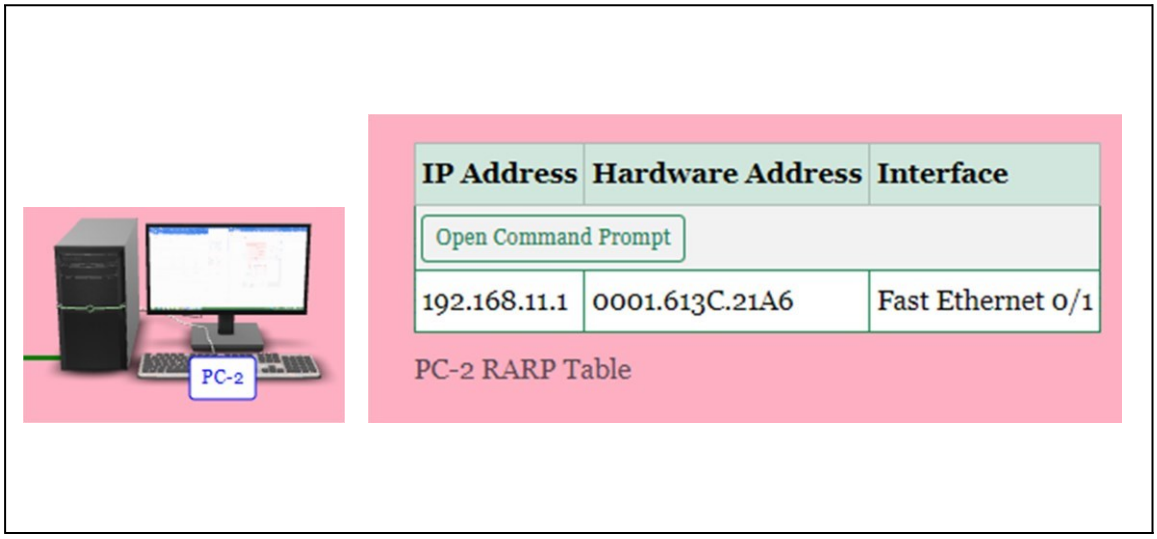
8. When you click on Packet Label you will get details of what is there inside the Packet when it goes from PC-1 to PC-2, PC-3 to search for that MAC Address



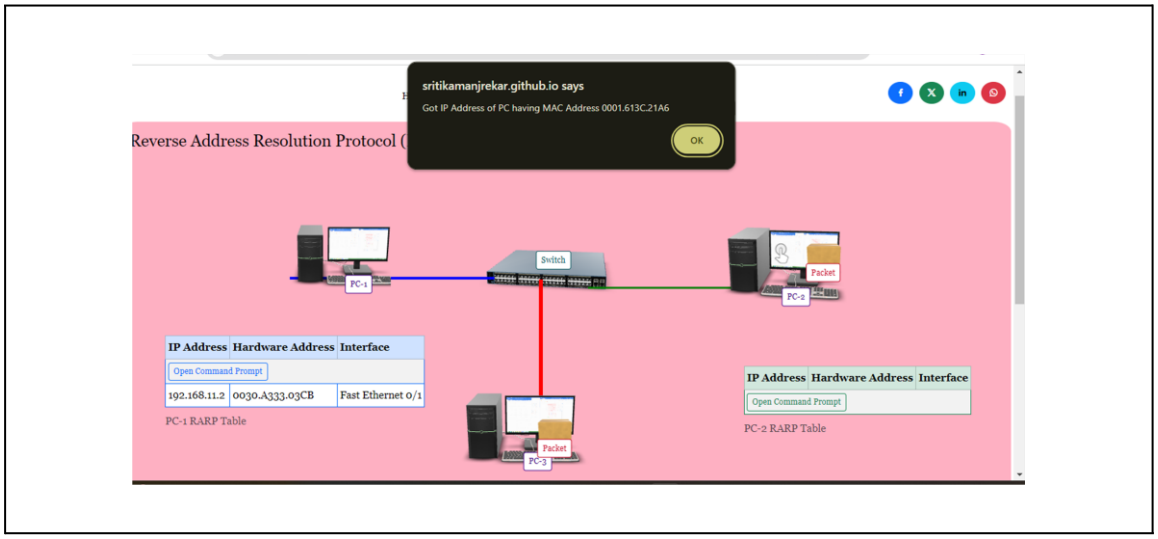
9. PC-1 sends a ping to all PC's whichever PC matches that ping MAC Address sends Acknowledgement and also stores PC-1 MAC Address and IP Address in their RARP table.



10. PC-2 stores IP Address, MAC Address, Interface in their RARP Table of PC-1.



11. You will get an alert message like this: “Got MAC Address” means communication between PC1 to respective PC with IP Address is completed.



This way you can get the IP Address of any PC when you know only one thing that is an MAC Address and this is how it works in Real World also.

Bonus!!!

You can also zoom in network devices with mouse to look around to take a look