

CSSE 490 -- NETWORK SECURITY

Rose-Hulman Institute of Technology

Lab 01: Introduction to Networking - ARP

Learning Objectives

At the end of this lab, you should be able to:

- Identify the data link and network layer protocols.
- Examine network packets captured on the wire.

Name: _____

Question	Points	Score
Question 1	10	
Question 2	5	
Question 3	10	
Question 4	15	
Question 5	5	
Question 6	15	
Question 7	5	
Question 8	5	
Question 9	5	
Question 10	5	
Question 11	0	
Total:	80	

1 Prelude

Question 1. (10 points) My CSSE332 morning section struggles to stay awake. Please write down something interesting or a joke that I can share with them to wake them up.

2 The ARP protocol

The questions below refer to section 1 of the lab documentation, specifically to the *Address Resolution Protocol* (ARP) section.

2.1 Examining packet captures

Question 2. (5 points) How many protocols have you captured? List them all (there should be at least three).

Question 3. (10 points) Before we see any ping packets, there are two packets that show up in the capture. In your own words, describe what you think these packets are for.

2.2 Digging into ARP

Question 4. (15 points) Based on your observations in this section, what is the purpose of the ARP protocol?

Question 5. (5 points) Where are ARP mappings stored on a machine?

2.3 Workings of ARP

Question 6. (15 points) In your own words, describe how the ARP protocol operates. List the steps involved in obtaining a mapping from a given IPv4 address to a corresponding MAC address.

Question 7. (5 points) On average, how often is an ARP request refreshed?

Question 8. (5 points) Consider the following scenario: `hostA` is pinging `hostB`, but all of a sudden, `hostB` dies. In terms of ARP, what do you think `hostA` will do after it asks `hostB` directly for its `MAC` address and it doesn't receive a response?

3 Wrap Up

Question 9. (5 points) In your own words, please write a quick summary of what you have learned in this lab.

Question 10. (5 points) How much time did it take you to complete this lab?

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Question 11. Do you have any feedback about this lab? (If you'd like to leave an anonymous feedback, feel free to detach this page and slide it under my door).