

DHCP

Introduction

DHCP (Dynamic Host Configuration Protocol) is used to configure networking parameters for an IP host interface. DHCP avoids the need to configure networking parameters manually. Instead, a host broadcasts a request for network configuration information and the appropriate network interface parameters such as IP address, netmask and gateway address are supplied by a DHCP server.

In this lab you will force your PC to release the configured network interface parameters and re-request them from a DHCP server. You will monitor the protocol exchange using Wireshark and answer some questions to confirm your understanding of the protocol.

Procedure

Download the [DHCP wireshark lab](http://www-net.cs.umass.edu/wireshark-labs/) from <http://www-net.cs.umass.edu/wireshark-labs/>.

Note the following:

- you must run Wireshark as an Administrator to be able to monitor the network interface (right-click on the Wireshark icon on the desktop and select “Run as administrator”)
- there is a shortcut for the Command Prompt on the desktop
- Lab PCs have multiple physical and virtual network interfaces. The command:

```
ipconfig /all
```

- will list the interfaces available. You can specify the interface name after the /release or /renew commands to specify a particular interface, for example,

```
ipconfig /renew "Local Area Connection 2"
```

or

```
ipconfig /release "Local*"
```

- network interfaces without an address will show a blank address instead of 0.0.0.0
- to view both DHCP and ARP packets you can use the filter expression: bootp or arp

- the DHCP RFC can be retrieved from: <https://www.ietf.org/rfc/rfc2131.txt>

Pre-Lab

Download the lab from the link above and read it. If you have any questions, ask them in class or on the course web site’s discussion forum. You do not have to submit a pre-lab report for this lab.

Report

Prepare a report answering the questions posed in the “What to Hand In” section.

A (protocol) timing diagram shows the exchange of messages between hosts. An example of a timing diagram for the DHCP protocol is given in the DHCP lecture notes. Time increases down (or to the right if the diagram is drawn horizontally). Vertical (horizontal) lines indicate each host and labelled arrows drawn horizontally (vertically) indicate the transmission of packets from one host to another.

Here is an example taken from [a patent by the author](#):

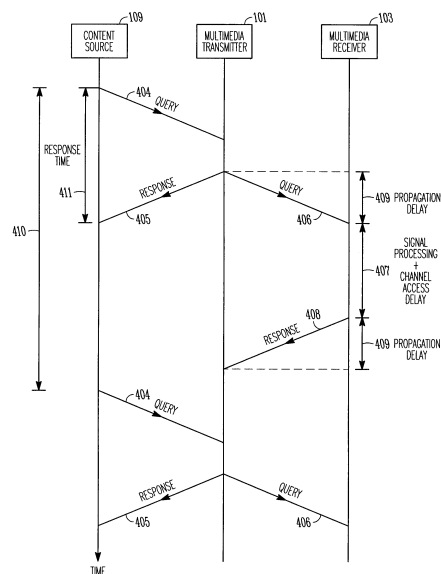


FIG. 4