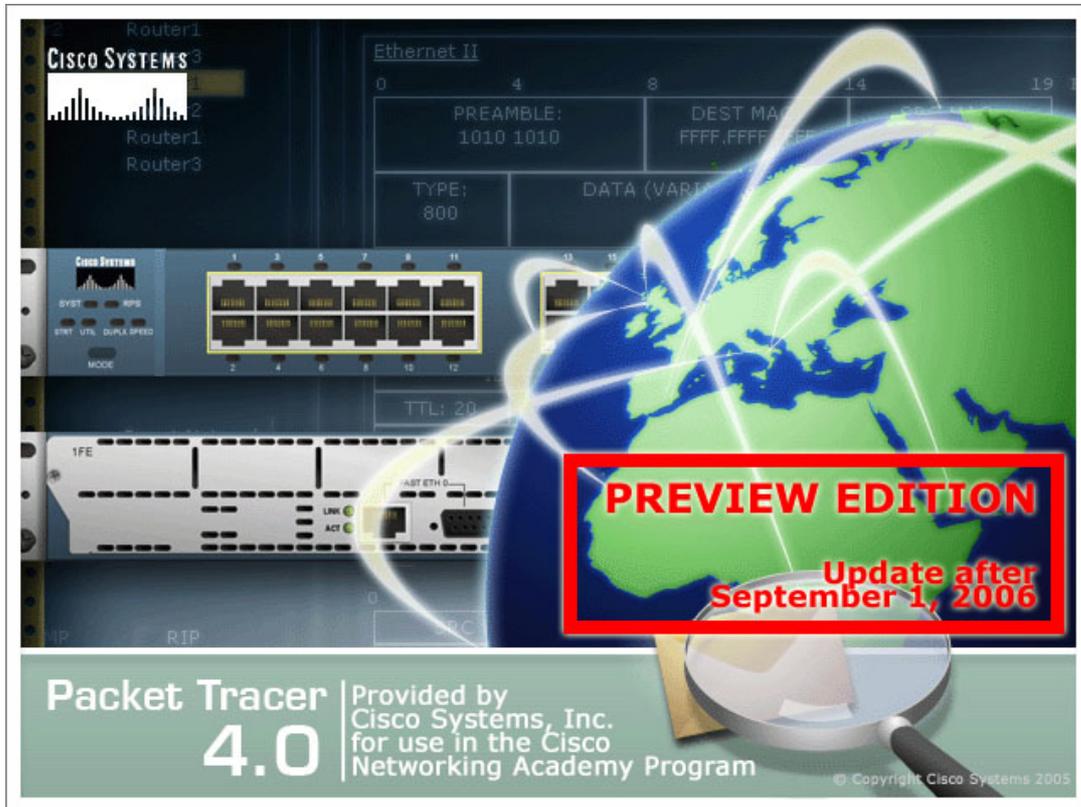


## **Computer Networks I**

# **Laboratory Exercise – Packet Tracer 4.0**

This exercise is an introduction to Packet Tracer 4.0, which is a simulation-based learning environment for networking novices to design, configure, and troubleshoot computer networks at CCNA level. With this software, own models and virtual networks can be constructed and animated by adding data packets to simulate traffic in the network, and examine how the packets are moving from the source to the destination.

## Packet Tracer 4.0



### Objective

In this laboratory exercise, you will be familiarized with the features of Packet Tracer 4.0, which can be used to experiment with network behaviour and ask “what if” questions. With this software you can construct own models or virtual networks, obtain access to important graphical representations of those networks, animate those networks by adding your own data packets, ask questions about those networks, and finally annotate and save your creations. You can step through simulated networking events, one at a time, to investigate the micro genesis of complex networking phenomena normally occurring at rates in the thousands and millions of events per second.

### Step 1 Getting started

1. Start Packet Tracer 4.0 by double clicking on the desktop icon.
2. The best place to get started is the help files. Click on the **Help** menu and select **Contents** or press the F1 key.

Here you can find documentation on almost all the features in Packet Tracer 4.0 (PT), with descriptive text, screenshots and animated tutorial guides. Start to read the content in “Getting Started”, to get an overview of how PT works. You can always go back to the Help files when you have started with the tutorials.

## Step 2 Tutorials

1. Click on the **Help** menu and select **Tutorials**, or press the F11 key.

These tutorials will demonstrate the basic functions, features, and aspects of PT.

2. View all the tutorials and read the appropriate section or pages corresponding to each tutorial.

## Step 3 ARP and ICMP exercise

1. When you feel comfortable in how PT works, you can start using the software. A lot of exercises will be available.
2. Click on the **File** menu and select **Open**, or press Ctrl+O.
3. Choose the folder **CCNA1** and start with the exercise called **ConceptBuilder\_HubVsSwitch**.
4. To start the exercise, open the file called **HubVsSwitch.pka**.
5. Follow the steps in the exercise, and complete the laboration.

What was the difference when you ping between the PCs connected to the hub compared with the ping between the PCs connected to the switch? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Step 4 Various protocols exercises

1. Open a new exercise in the CCNA1 folder, called **ConceptBuilder\_VariousProtocolLabs**. Click on **ConceptBuilder\_ARP**, and open the activity file.
2. Follow the steps in the exercise and answer the following questions:

What happens to the MAC address as the PDU travels the network topology? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Why did the router issue a reply to the ARP Request? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. When the exercise is finished, continue with the exercise in called **ConceptBuilder\_L2L3** in the same folder. This exercise will examine the ARP and MAC tables on the devices.

When does a router forward an ARP request? \_\_\_\_\_  
\_\_\_\_\_

When the switch's MAC Address table contains the destination MAC address, what advantage does a switch have over a hub? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. There are a lot of exercises available in PT, and you can use them to get help to understand how the data communication in a network really works. PT can also be used to build own networks and visually see how the packets are traveling from the source to the destination.