Lab 0 Getting Started with OPNET IT Guru Academic Edition

Overview
OPNET IT Guru Academic Edition provides network modeling, simulation, and analysis features. It provides the user with the ability to choose network devices, such as switches, routers, and workstations; connect them together with various types of links, such as Ethernet 100BaseT, FDDI, and ATM; and define network traffic patterns. OPNET may then be used to simulate the behavior of the modeled network, to collect statistics, such as application response time or link utilization, and to display graphs of the collected statistics. OPNET may also be used to design computer networks from scratch, to validate or troubleshoot an existing configuration, or to evaluate a proposed upgrade.

Objective
To learn the basics required to use OPNET effectively, including creating projects, building models, choosing statistics, managing scenarios, and viewing results.

Install OPNET IT Guru Academic Edition

Before downloading the software, make sure that your system conforms to the minimum system requirements for running IT Guru Academic Edition.

System Requirements

Operating Systems:
Windows XP (Service Pack 1 is required.)
Windows 2000 (Service Packs 1 and 2 are supported but not required.)
Windows NT 4.0 (Service Packs 3, 5, and 6a are supported. Service Packs 4 and 6 are not supported.)
Memory:
256 MB is required.
Disk Space:
200 MB is required. An additional 200 MB is required during installation only. An additional 20 MB is suggested for storing models created during lab exercises.
Display:
1024x768 resolution or higher is required. 256 or more colors are required.

To begin the installation process, visit the IT Guru Academic Edition website at
http://www.opnet.com/services/university/itguru_academic_edition.html

Click on **Download Now**.

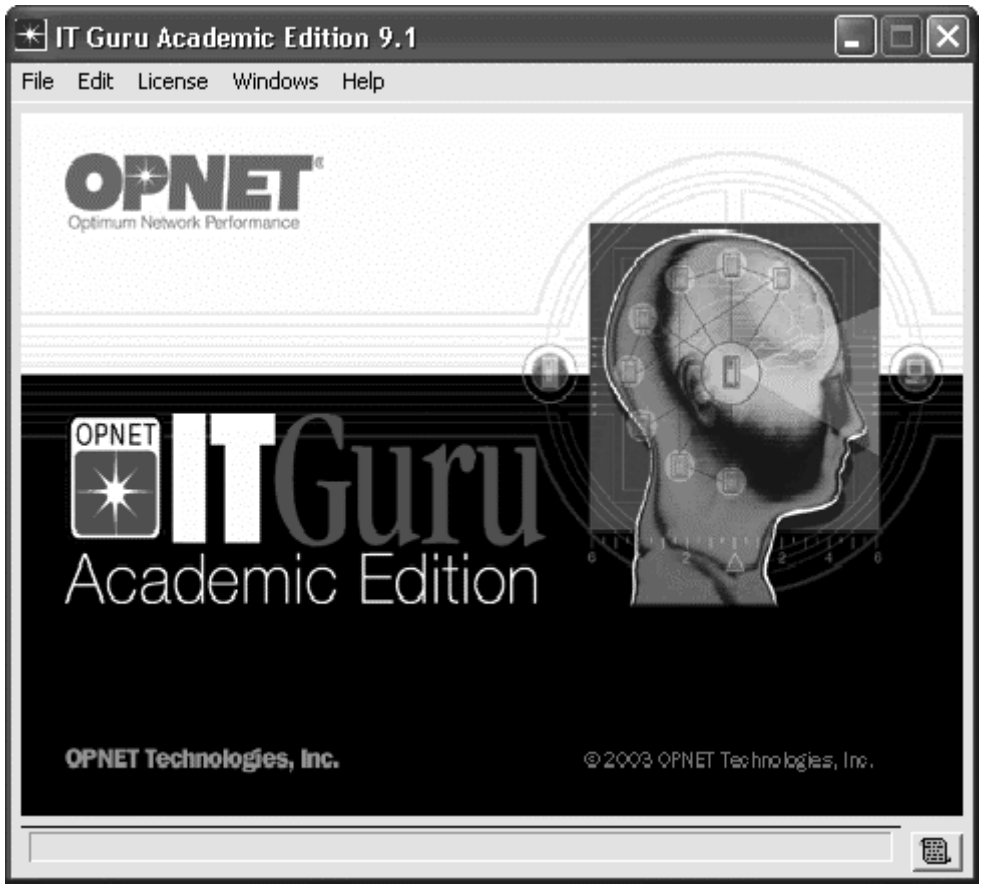
You will then be asked to register with OPNET so that an account may be created for you. When this step has been completed, a login and password will be emailed to you together with the web address of the download site.

When you receive your login and password, download the application and follow the installation and license management instructions.

Launching OPNET IT Guru Academic Edition

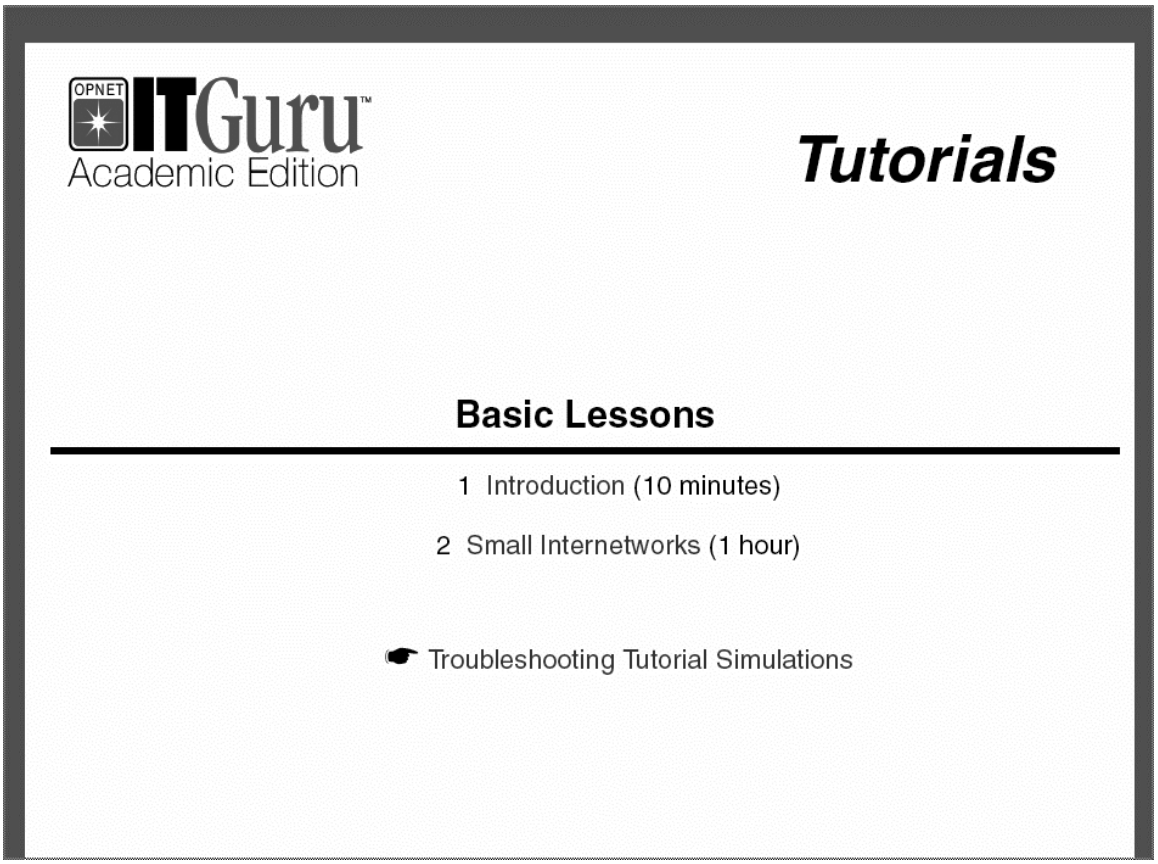
Select the **Start** button => **OPNET IT Guru Academic Edition x.x** => **OPNET IT Guru Academic Edition** (where **x.x** is the release number).

Read the license agreement and, if you agree with the statement, click on the **I have read this SOFTWARE AGREEMENT and I understand and accept the terms and conditions described herein** button. The main OPNET window will appear.



OPNET IT Guru Academic Edition provides two tutorials to help you get acquainted with OPNET. The first one, the Introduction, leads you through the various OPNET features, including the Project Editor, Toolbars, and the Workspace. The second, Small Internetworks, guides you through the creation and simulation of a local area network (LAN) model.

Click on the **Help** tab => **Tutorial**. OPNET will spawn off a PDF viewer so that you may page through the tutorials. Under **Basic Lessons**, click on the **Introduction** button and read through the document. When you are done, close your PDF viewer window.



Click on the **Help** tab => **Tutorial**. Under **Basic Lessons**, click on the **Small Internetworks** button. As you read through the document, perform the described actions using OPNET. You will model a small LAN, identify statistics to be collected, and view the results of the simulation. While completing the tutorial, you will learn to perform many of the tasks that will be required in later lab exercises, including duplicating scenarios, comparing results between scenarios, and using the Rapid Configuration tool. When you have completed the tutorial, close your PDF viewer window.

You should now be ready to complete any of the lab exercises included in this manual.

Questions

1. While completing the Small Internetworks tutorial, record the following values:
   a) Peak load for the first_floor scenario.
   b) Maximum delay for the first_floor scenario.
   c) The elapsed time it took to run the simulation for the first_floor scenario.

2. Explain the difference between **Elapsed Time** and **Simulated Time**. In the Single Floor scenario, which was larger? Explain why.

3. What is the average Ethernet load in the expansion scenario? What is the utilization of the Ethernet LAN? Remember that the utilization is the load divided by the network capacity (both measured in bits/second).

4. What was the elapsed time when running the expansion scenario? Was it longer than the elapsed time for the first_floor scenario? If so, why?