

Basics of OPNET IT Guru Academic Edition

OBJECTIVES

This lab teaches you the basics of using OPNET IT Guru Academic Edition. OPNET IT Guru Academic Edition enables students to better understand the core concepts of networking and equips them to effectively troubleshoot and manage real-world network infrastructures.

OVERVIEW

OPNET's IT Guru provides a virtual network environment that models the behavior of your entire network, including its routers, switches, protocols, servers, and individual applications. By working in the virtual network environment, IT managers, network and system planners, and operations staffs are empowered to diagnose difficult problems more effectively, validate changes before they are implemented, and plan for future scenarios, including growth and failure.

OPNET's Application Characterization Environment (ACE) module for IT Guru enables enterprises to identify the root cause of end-to-end application performance problems and to solve them cost-effectively by understanding the impact of changes.

In this lab, you will learn the basics of the OPNET IT Guru Academic Edition software. You will learn how to set up and run OPNET IT Guru Academic Edition. You will become familiar with some of its capabilities by running some tutorials.

The labs in this manual are implemented with OPNET IT Guru Academic Edition release 9.1.A (Build 1999). If you want to download the software, you can visit the following site to register with OPNET technology: www.opnet.com/university_program/itguru_academic_edition/



Recommended system configuration, platforms, and software:

- 1.5-GHz processor or higher, 512-MB to 2-GB RAM, and 1-GB disk space
- Display: 1024 × 768 or higher resolution, 256 or more colors
- Adobe Acrobat Reader
- The English-language versions of the following operating systems are supported:
 - Microsoft Windows NT (Service Pack 3, 5, or 6a)
 - Windows 2000 (Service Pack 1, 2, and 4 are supported but not required)
 - Windows XP (Service Pack 1 or 2 is required)
 - Windows Vista (Service Pack 1 is required)

INTRODUCTION

Basics of OPNET IT Guru Academic Edition

PRE-LAB ACTIVITIES

-  Read Chapter 1 from *Computer Networks: A Systems Approach, 5th Edition*.
-  Go to www.net-seal.net and play the following animation:
 - No Network

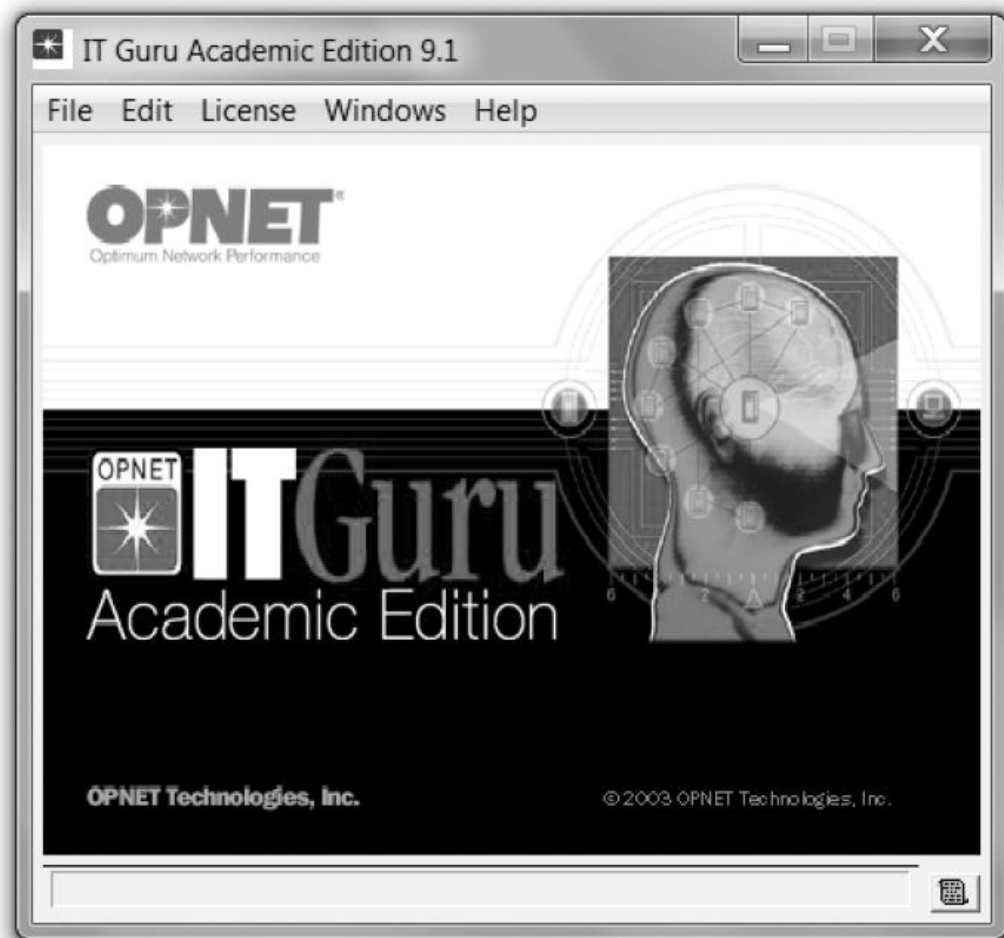
PROCEDURE

Start OPNET IT Guru Academic Edition

To start OPNET IT Guru Academic Edition:

1. Click on **Start** → **All Programs** → **OPNET IT Guru Academic Edition x.x** → **OPNET IT Guru Academic Edition**, where *x.x* is the software version (e.g., 9.1).
2. Read the **Restricted Use Agreement** and if you agree, click **I have read this SOFTWARE AGREEMENT and I understand and accept the terms and conditions described herein**.

Now you should see the starting window of OPNET IT Guru Academic Edition as shown:

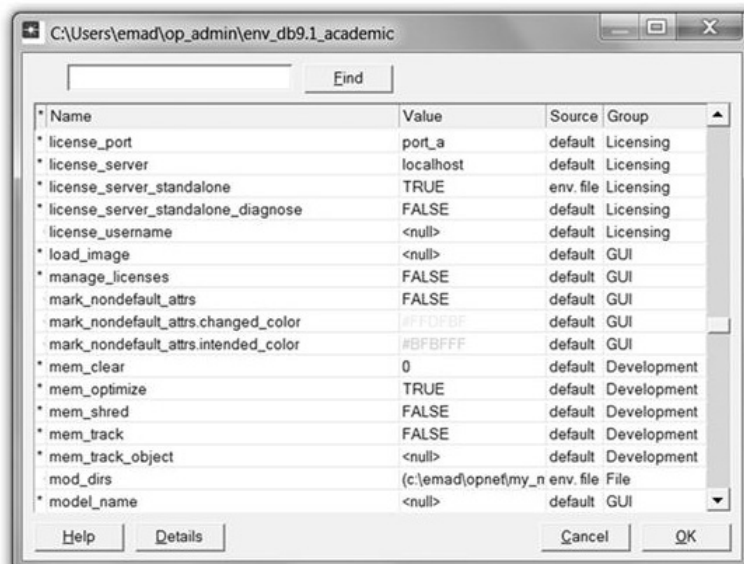
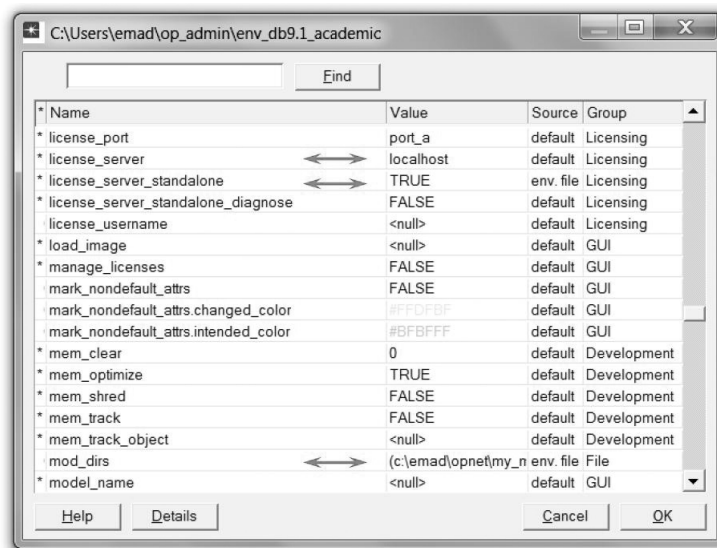


CHECK THE OPNET PREFERENCES

The OPNET Preferences let you display and edit environment attributes, which control program operations. In this lab, you will check three of these attributes.

1. After starting OPNET, from the **Edit** menu, choose **Preferences**.
2. The list of environment attributes is sorted alphabetically according to name. You can locate attributes faster by typing any part of the attribute's name in the **Find** field.

3. Check the value of the **license_server** attribute. It has the name of the License Server's host. If IT Guru is getting its license from the local host (i.e., the computer on which the software was installed), the value of **license_server** should be **localhost** as shown in the following figure.
4. Set the **license_server_standalone** attribute to **TRUE**. This attribute specifies whether the program acts as its own license server.
5. A model directory is a directory that contains OPNET model files. If the directory is listed in the **mod_dirs** environment attribute, then OPNET programs will use the models in that directory. Check the value of the **mod_dirs** attribute. The first directory in the list is where your own models will be saved. In the future, you might need to access that directory to back up, copy, or move your models. IT Guru saves numerous files for every single project you create.
6. Click **OK** to close the dialog box.



Run the Introduction Tutorial

Now you will run the introductory tutorial that teaches you the basics of using OPNET IT Guru.

1. From the **Help** menu, select **Tutorial**.
2. Go over the **Introduction** lesson from the list of *Basic Lessons*.

Run the Small Internetworks Tutorial

In this tutorial, you will learn how to use OPNET IT Guru features to build and analyze network models.

1. From the **Help** menu, select **Tutorial**.
2. Carry out the **Small Internetworks** tutorial from the list of *Basic Lessons*.

EXERCISE

1. In the project you created for the **Small Internetworks** tutorial, add a new scenario as a duplicate of the **first_floor** scenario. Name the new scenario **expansion2**. In the **expansion2** scenario, expand the network the same way as you did in the **expansion** scenario but with 30 nodes in the second floor instead of 15 nodes. Run the simulation and compare the load and delay graphs of this new scenario with the corresponding graphs of the **first_floor** and **expansion** scenarios.

LAB REPORT

The laboratory report for all labs in this manual, including this one, should incorporate the following items/sections:

- A cover page with your name, course information, lab number and title, and date of submission.
- A summary of the addressed topic and objectives of the lab.
- Implementation: a brief description of the process you followed in conducting the implementation of the lab scenarios.
- Results obtained throughout the lab implementation, the analysis of these results, and a comparison of these results with your expectations.
- Answers to the given exercises at the end of the lab. If an answer incorporates new graphs, analysis of these graphs should be included here.
- A conclusion that includes what you learned, difficulties you faced, and any suggested extensions/improvements to the lab.