

Lab 1 Exercises

Wireless Networking 419

August, 2005

Task 1

The first part of this lab is designed to get you familiar with the way *ns-2* works. In particular, you are required to understand the syntax and purpose of Tcl topology files, the nature of post-processing data, and the syntax of the output files.

Those that have attended the lecture will already have some knowledge of the material as we went through selected exercises from Marc Greis tutorial, available at:

<http://www.isi.edu/nsnam/ns/tutorial/>

Your first task is to go through the entire tutorial and perform the exercises yourself. This will give you the experience necessary for the second task. Note that you **do not** need to do any exercises that require modification/creation of a protocol. We are only interested in writing topology files.

Task 2

If your honours project is in the area of Wireless Networking, you will have already noticed that there exists a common setup for protocol testing. For example, the quote below comes from Broch et al. (1998), available online at:

<http://monarch.cs.rice.edu/monarch-papers/mobicom98.pdf>

A common setup is:

Our protocol evaluations are based on the simulation of 50 wireless nodes forming an ad hoc network, moving about over a rectangular (1500m X 300m) flat space for 900 seconds of simulated time.

Your task is to write a Tcl topology file to simulate the above conditions. You should start from the final script from the Marc Greis tutorial. Some additional information you should know:

- You need to create two scenarios; one is a completely mobile and the other is a completely static topology (no movement of nodes). You will need to think about the waypoint mobility model that is used in generation of scenario files. This is explained in the Marc Greis tutorial.

- The protocol you should test is the one you covered in the last lecture, DSDV.
- The remaining settings, ie signal propagation, antenna type etc. should be the same as in the tutorial exercises.
- For now, you do not need to examine the trace files, but you are required to export data so that your test scenarios can be visualised using *nam*.