

DMP Final Report  
By Eugenia Shlimovich

Title of Project: Customized Internet Mapping and Picturing

#### Purpose of Project:

The purpose of developing this Java application and applet is to provide a user-friendly, multi-featured, compact tool for researchers, network administrators and interested parties to create visual representations of internet routing. While this is possible to do by hand by using existing text BGP routing tables that list all possible paths from one autonomous system to another, these tables are often hundreds of thousands of lines long, and are not searchable like a database. This tool, using text parsing, creates data files out of downloaded BGP tables, and allows the user to specify through a GUI what information she wants to see. There is also a way to link the application and a MySQL database which allows greater capabilities than simply with parsed text files, and is faster.

#### History & Goals:

This project was started as a senior thesis project by Karim Mattar, who is now a PhD student at Boston University. When I arrived, the project was in mid-development, with a rudimentary GUI, and some mapping capabilities. Some of the mapping algorithms we later discovered to be erroneous. The project also was very memory-inefficient, and the GUI was very disorganized. Our goals for the summer were to make the GUI more user-friendly and intuitive, to fix the mapping algorithms (and their textual output counterparts), and to add new capabilities, like the applet version of the application, database versions of BGP tables and a daemon that automatically updates the tables, extra batch processing capabilities, new mapping algorithms (like from any AS to any other AS, which we initially deemed impossible), and facilitating downloading of the application for installation.

#### Project Specifications:

The application has a GUI user interface, which initially consists of a window with a menubar, a toolbar, and a status frame. The user can then choose the data source from the menubar, and begin creating custom drawings from any AS in the database (around 14,000 different ASes are in the database currently) to any other AS, or to the Oregon AS conglomerate. The user can also see which AS commercial name (like CNN.com) correspond to each AS number/IP address, and there is a feature to input a text file of AS numbers and IP addresses that converts them to AS commercial names. Also, the user can obtain a list of all paths to direct and indirect customers or providers to a user-specified depth, and all of these customers or providers sorted by depth.

We accomplished all of our goals and we have a finished product available for download.