An Automated Planning Assistant for HF Communications Simulation

Overview
The purpose of the project is to develop an automated planning assistant (APAHC) to aid in the planning of HF radio communications. The purpose of the planning assistant software is to automate the specification of the categories of information required for communication such as the radio stations and their attributes, the physical locations of radio stations with reference to geographic information supplied by a GIS, membership of these stations in networks within which communication is to occur, and the allocation of communication resources (channels defined by center frequency and bandwidth) to these networks and stations.

Objectives
The goal of the project is to develop a graphical user interface to facilitate the planning of a proposed HF radio communication network. The user supplied data captured by the GUI will be stored in a database for future simulations, and then have the supplied values used to calculate the path loss and signal to noise ratio between individual stations.

Approach
- Compiled a list of sponsor needs
- Compared different potential technologies for implementation
- Chose technologies based on sponsor feedback and software capabilities
- Developed software based on sponsor’s portability needs

Outcomes
- Sponsor can test potential radio deployments and receive real time value calculations used to determine the quality of communication between radios
- Sponsor saves the time and effort of needing try deployments by hand for testing
- Sponsor now has efficient means of calculating path loss and signal to noise ratio values without doing calculations by hand, or relying on another program
- Sponsor has been given a piece of software designed to be flexible enough that it can be adapted to changing needs in the future for different testing purposes