Tutorial on usage of Gurobi

This tutorial was written under the assumption that you are using some Linux distribution. In case you are not, the adaptations should not be drastic and they probably are covered by the references indicated throughout the text. Please send corrections and suggestions to Elisa Dell'Arriva.

1 Installing Gurobi Optimizer with Academic License

1.1 Creating an account

1. Open Gurobi home page: https://www.gurobi.com
2. Click on 'Register' on the right upper corner and fill in the required information.
   IMPORTANT: choose the academic version and register with your academic email (in our case, use the domain @dac.unicamp.br).
3. After registering, go to the login page and click on "Reset your Password". You will receive an email, follow its instructions. Finally, login with your academic email and password you have just set.

1.2 Installing the software

1. In the menu, click Downloads & Licenses > Gurobi Software.
2. Scroll down and you will see a table of the current versions for the Gurobi Optimizer. Download the package that is appropriate for the platform you are using.
   Note: you can save this file in any directory, however, it is recommended that you save the file either in your home directory or in the opt/ directory. To avoid problems with permission's validation, I recommend you choose your home directory.
3. In the menu, click Documentation > Quick Start Guides.
4. Choose the guide for your platform and follow the instructions.
   Note: I used Linux, and the process was: once the guide is loaded, click on the link "Software Installation Guide". The installation guide gives you detailed instructions (including how to set the environment variables).
5. Once you have successfully installed the software, you have to set up the license.

1.3 Retrieving the license

1. Make sure you are logged in with your academic account.
2. In the menu, click Academic > Gurobi for Academics.
3. Scroll down to see the options. Find the box saying "Academic Named-User License" and click in "Learn More".
4. Scroll down and click on the link "Free Academic License" (it should be in step 4).
5. Now you will see the "Academic License Registration" page and you must accept the terms and conditions described in order to be granted access to the license.
6. Finally, you will see the license's details page. Follow the instructions on this page. (Here you will need to run the command "grbgetkey").

1.4 Testing the installation

1. If you are using Linux, in this page (https://www.Gurobi.com/documentation/10.0/quickstart_linux/solving_a_simple_model_the.html) you will find instructions on how to run a simple model just to make sure Gurobi is working fine in your machine.

2 Compiling c++ with Gurobi

For the compiler to recognize the Gurobi functions and variables, you need to include appropriate headers in the file of your code. The first step is to build Gurobi libraries and then copy them to the /lib folder. In all the following suggested commands, change `<GRB_path>` to the path of the directory where you chose to install Gurobi in the previous section.

1. Access the build directory and execute the Makefile.

   ```
   > cd <GRB_path>/linux64/src/build
   > make
   ```

2. Copy the file created to the folder /lib.

   ```
   > cp libGurobi_c++.a ../../lib/
   ```

3. Now you just need to include the library in the headers of your code files.

   ```
   #include "Gurobi_c++.h"
   ```

4. Finally, you need to indicate the path to these libraries to the compiler. For that you need to add some parameters to your compiling command line. It should look something like this:

   ```
   > g++ <your_flags> <source_files> -o <binary_output_file_name>
   -I<GRB_path>/linux64/include -L<GRB_path)/linux64/lib
   -lGurobi_c++ -lGurobi100
   ```

   Be attentive to the version you installed. In the example above, I considered version 10.0.

It is recommended that you write a Makefile to compile your files, and use variables to keep the paths that have to be specified. I recommend that you run some code files in order to check if your environment is well set and working correctly. You can find c++ source files of several examples provided by Gurobi in the directory `/home/dellarrivalisa/gurobi1000/linux64/examples/c++`. Copy some of them to your working directory and try to compile them.