* The **generate\_network.cpp** script generates connectivity by reading the mriNetwork.cfg configuration file
* **Makefile** compiles and executes generate\_network (we currently use network\_mri\_LH\_multilayer)
  + The paths to the input files in Makefile (under network\_mri\_LH\_multilayer) will need to be updated to the new location where you save the input files (uploaded in OneDrive NeuroscienceCybershuttle/input\_files)
* The output of generate\_network.cpp is **connection\_info2** (can be renamed in Makefile, last argument of network\_mri\_multilayer). The basic structure of connection\_info2 is:
  + First row:
    - number of cell types
  + Next few rows before the first "In:":
    - # of cells for each type (e.g. 642 cells of type 0, 10242 cells of type 4)
    - Notes:
      * These rows have two numbers which are supposed to be "# of cells along dimension x" and "# of cells along dimension y" in case we are building a 2D network. However, since we don't use a 2D structure here, the second number is always 1, meaning that, for example, there is a 10242-by-1 vector of neurons in type 4.
  + "In" rows (e.g. In: 2 75 0):
    - In: type cell\_x cell\_y
    - Notes:
      * "type" is an integer from 0 to 31 because there are 32 types (16 in each hemisphere) but you will only find the actually used types, which are 0-15 since only one hemisphere was modeled
      * cell\_x is the index or "id" of that cell within its type. It goes from 0 to 641 or 0 to 10241 depending on the type.
      * cell\_y is not really used because it's not a 2D network, so cell\_y = 0 for all cells
  + Other rows (e.g. 4 234 0 AMPAMap\_D1 0.0002 1.6e-06 500 1 16.1308)
    - from\_cell\_type from\_cell\_x from\_cell\_y synapse\_type synapse\_strength mini\_strength mini\_frequency range delay
    - from\_cell\_type: type of the pre-synaptic cell
    - from cell\_x: index of the presynaptic cell within its type
    - from\_cell\_y: always 0
    - synapse\_type: string with the class of synapse, like "AMPA" or "GABA\_A"
    - synapse\_strength: weight or strength of the connection
    - mini\_strength: strength of spontaneous miniature post-synaptic potentials (minis)
      * this didn't really come from data - it's more of a model parameter we can set and tune in cfg.
    - mini\_frequency: frequency of minis
      * also not from data, we can set it as needed in cfg
    - range: whether it is a "short-range" connection or not (boolean). It is not used anymore, always 1.
    - delay: represents the approximate synaptic delay associated with that connection.