

# ISIS & AtomDB 3

ISIS makes some extra demands on the AtomDB database which require access to the underlying atomic database (APED) as well as the line and emissivity files.

It does not, however, require access to all of the database. The majority of the data in APED is for collisional excitation, autoionization and ionization/recombination, and lines which are out of the X-ray band.

Previously, the answer was to install, in the APED subdirectory of AtomDB, all the files in the AtomDB database. These came to << 1Gb, so this was possible.

With the addition of the autoionization data and all the excitation data for inner shell processes, the AtomDB database has swollen to 19Gb, and it is no longer practical to distribute in its full, raw form. We are still working on the best way to distribute the underlying data to those who need it. For ISIS purposes, we have made a smaller file, `atomdb_isis.tar.bz2`. This contains only the energy level, wavelength, and dielectronic recombination files (LV, LA and DR) and the ionization balance and abundance files. These files come to around 1Gb again once unzipped.

In addition, the number of lines in the AtomDB database has increased by a not insignificant factor. It is therefore necessary to increase the variable in ISIS which provides the initial guess of the emissivity list size:

```
isis> EM_Hash_Table_Size_Hint=500000;
```

500,000 has proved large enough for AtomDB v3.0.2.

With these additional downloads & commands, ISIS should work in AtomDB v3.0.2. If you have any issues please contact me ([afoster@cfa.harvard.edu](mailto:afoster@cfa.harvard.edu)). I am not the ISIS developer, but I will do my best to help you/ pass you on to the right people.

Adam Foster

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