

# READ-ME for cGENIE: 'muffin' pre-release version

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## 0.1 Whats new in the 'muffin' branch of cGENIE?

cGENIE is a cutdown and simplified, carbon cycle centric version of the 'GENIE' Earth system model. 'muffin' is the current development branch of cGENIE.

There are a few relatively minor changes in the way that the muffin branch of cGENIE is configured and run compared to previous versions of 'GENIE' and the standard cGENIE branch.

1. Firstly: some of the (rarely if ever used, or simply not working and/or redundant) science modules such as the IGCM atmospheric GCM model have been deleted. It is hence no longer necessary (nor even possible) to do the `make assumedgood` test as part of the model installation procedure.
2. In installing: no additional directories need be created. (The `~/cgenie_output` directory is automatically created if you have run e.g. `'make testbiogem'` during model installation.)
3. The recommended way to run cGENIE is via `runmuffin.sh`<sup>12</sup> – a script that carries out the basic configuration tasks and packages up the results for you. It also diagnoses and sets the appropriate time-stepping depending on the ocean circulation module resolution specified in the *base-config*. `runmuffin.sh` is held under SVN and resides in the directory `~/cgenie.muffin/genie-main`, from where experiments are run.

4. The complete command line looks like:

```
./runmuffin.sh cgenie.eb_go_gs_ac_bg.worjh2.ANTH / EXAMPLE.worjh2.Caoetal2009.SPIN 10000
```

Note that no path is given for the *user-configs* other than '/' because cGENIE is expecting `~/cgenie.muffin/genie-userconfigs` by default.

If you use a subdirectory of `~/cgenie.muffin/genie-userconfigs` then you would specify the subdirectory name in place of '/', e.g.: LABS.

5. As part of the initialization – misspelt or plain non-existing parameter names are now automatically checked-for (and model execution will stop and let you know).
6. Previously, the forcing directory was set in the *user-config* file by the namelist parameter:

```
bg_par_fordir_name.
```

Now the forcing directory is set to `~/cgenie.muffin/genie-forcings` as default and the namelist parameter: `bg_par_fordir_name` needs not be set (to anything different). Instead, which forcing is used is set by the namelist parameter: `bg_par_forcing_name`, e.g.:

```
bg_par_forcing_name='worjh2_preindustrial_FeMahowald2006'
```

7. The same `runmuffin.sh` script can be used to submit jobs to the cluster. For example:

```
qsub -j y -o cgenie_log -V -S /bin/bash  
runmuffin.sh cgenie.eb_go_gs_ac_bg.worjh2.ANTH / EXAMPLE.worjh2.Caoetal2009.SPIN 10000
```

8. The *base-config* files have been somewhat rationalized.

Muffin-friendly *base-config* files have the naming format starting 'cgenie.' in `~/cgenie.muffin/genie-main/configs`

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<sup>1</sup>This script is configured for running on a specific computing cluster, and may require adapting to a different computing environment.

<sup>2</sup>Note the file `runmuffin.sh` **MUST** have executable permissions (you can add executable permissions by typing the command: `chmod u+x runcgenie.sh`).

9. It is no longer necessary (ever!) to manually request a `make cleanall` – `cGENIE` now keeps track of the last `base-config` used and will automatically `make cleanall` if you start using a different one.
10. Output is now split up – the `runmuffin.sh` script saves the archived experiment `.tar.gz` file in the directory `/cgenie_archive`, which is created automatically if it does not exist. The job submission (above) specifies that the submission log is saved to `/cgenie_log` – again, automatically created if it does not already exist.