Sparkle user guide

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1 Settings

1.1 Slurm (focused on Grace)

Slurm settings can be specified in the `Settings/sparkle_slurm_settings.txt` file. Note that a number of Sparkle commands internally call the `srun` command, and for those commands the provided settings need to match the restrictions of your call to a Sparkle command. Take for instance the following command:

```
srun -N1 -n1 -p graceTST Commands/configure_solver.py
    -solver Solvers/Yahsp3 -instances-train Instances/
    Depots_train_few/
```

This call restricts itself to the `graceTST` partition (the `graceTST` partition only consists of node 22). So if the settings file contains the setting `--exclude=ethnode22`, all available nodes are excluded, and the command cannot execute any internal `srun` commands it may have.

Finally, Slurm ignores nested partition settings for `srun`, but not for `sbatch`. This means that if you specify the `graceTST` partition (as above) in your command, but the `graceADA` partition in the settings file, Slurm will still execute any nested `srun` commands on the `graceTST` partition only.

2 Required packages

2.1 On Grace

Grace is the computing cluster of the ADA group[1] at LIACS, Leiden University. Since not all packages required by Sparkle are installed on the system, some have to be installed local to the user.

Specifically, `epstopdf` is required for Sparkle's reporting component to work (e.g. `generate_report, generate_report_for_configuration`), it can be installed in your user directory as follows:

1. Download `epstopdf`

   ```
   wget http://mirrors.ctan.org/support/epstopdf.zip
   ```

[1] `http://ada.liacs.nl/`

2. Unzip the package
   `unzip epstopdf.zip`
3. Rename `epstopdf.pl` (inside the directory you just unzipped)
   `mv epstopdf.pl epstopdf`
4. Add this line to your `.bashrc` (open with e.g. `vim ~/.bashrc`)
   `export PATH="/<directory>/epstopdf:$PATH"`
   (replace "`<directory>`" with the path to the `epstopdf` directory)

2.2 Yahsp example

1. Install gmp on Grace
   `wget https://gmplib.org/download/gmp/gmp-6.1.2.tar.xz`
   `tar -xf gmp-6.1.2.tar.xz`
   Inside the `gmp-6.1.2` directory:
   `./configure`
   `make`
   `make check`
2. Navigate to the `seq-agl-yahsp3` directory
3. Add the below after `-fpermissive` on line 24 of `cpt-yahsp/CMakeLists.txt`:
   `-I /home/blomkvander/lib/gmp-6.1.2/ -L /home/blomkvander/lib/gmp-6.1.2/.libs/`
   (replace `/home/blomkvander/lib/` with the path where you installed gmp)
4. Compile yahsp with:
   `./build`
5. In `yahsp/esegui.sh` the line `#!/bin/bash` was added to the start of the file to allow Grace nodes to find the 'time' utility.