CODE VALIDATION TOOLS IN ARPEGE/ALADIN :
MITRAILLETTE AND MITRARP (CY36T2).
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METEO-FRANCE/CNRM/GMAP/ALGO

PORTABLE VERSIONS OF MITRAILLETTE AND MITRARP.

- Softwares doing a list of scripts to be launched for code validation.
- MITRAILLETTE : for ALADIN, ALARO, AROME validations.
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- Portability : it is easy to switch to another computer with a minimal amount of modifications in some configuration files.
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FILE ENVIRONMENT FOR MITRAILLETTE.

- Directory "mitraille".
- Files and directories under "mitraille" :
  - al36t2 (dir)
  - mitra_home_location
  - mitraillette.x
  - namelist/al36t2/nam...
  - PRO_FILE.al36t2
  - protojobs/job.
  - protojobs/[computer name]/config
  - protojobs/[computer name]/jobtrailer
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MORE DETAILS ABOUT THESE FILES.

- mitra_home_location : contains the directory where the "mitraillette" procedure and the above arborescence are stored.

- mitraillette.x is the main procedure launching MITRAILLETTE : it requires three arguments : the cycle (in uppercase characters), the PRO_FILE file, and a third argument which is equal to "mono" (if only monoprocessor jobs are launched), "multi" (if only multiprocessor jobs are launched), "all" (if both monoprocessor and multiprocessor jobs are launched).

- PRO_FILE.cy36t2 is the file containing the list of tasks to be launched and the executable to be used for each task. Each task has a four-digits code (example "ah1t"). Each line contains the four-digits code, the original executable name, and the actual executable name (complete path required) to be used.

- The directory "namelist/cy36t2" contains a list of namelists which should be norm-compliant.

- The directory "protojobs" contains a list of scripts.

- The content of namelists and "protojobs" scripts must not be machine dependent.

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- file "config" : gives information about directories where some files must be found or stored, modified definitions of some commands (doing file copy, task launching for example), and definition of some other environment variables.

- file "jobtrailer" contains the right version of "ja" (to have CPU and memory use).

- file "monoheader" (resp. "multiheader") contains the script header for monoprocessor (resp. multiprocessor) jobs.

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HOW TO LAUNCH MITRAILLETTE.

Example for AL36T2, monoproc jobs.

- Go to directory containing procedure mitraillette.x
- Do the following instruction : mitraillette.x AL36T2 PRO_FILE.al36t2 mono
- Some environment files are created, with a experiment number (for example we consider that this four digit number is 4407) :

  - rank_file.x4407
  - job_end.x4407
  - test.x4407
  - log_file_AL36T2_4407
  - rank_last.x4407
  - mitraillette.o4407
  - mitra_home_location (updated existing file)

- A directory mitraillette_4407 is created under directory al36t2. It contains updated scripts (chainjob_000, chainjob_001, ...) ready to be launched.
- Execute test.x4407 to launch the first "chainjob" script. One "chainjob" script launches the following one once its task ends.

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MITRARP.

- Environment description not given into details.

- Very similar to the MITRAILLETTE one.

- Root "mitraille" or "mitraillette" is replaced by "mitrarp" in file and directory names.

- Root "al" or "AL" is replaced by "cy" or "CY" in file and directory names.

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LIST OF JOBS.

- For each job, a four-letter identifier. For example :

    - ARPEGE : code MHLJ = equivalent of a recent operational version of ARPEGE-METROPOLE forecast.

    - ALADIN : code AG1T = equivalent of a recent operational version of ALADIN-FRANCE forecast.

- List of jobs provided in documentation.

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- Validations on several nodes.

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- Scripts for components of 3DVAR or 4DVAR assimilations :

  - not easy to do (tricky file environment, calls ODB).
  - sometimes too expensive to be imported in MITRAILLETTE (ex. of ARPEGE screening).
  - need simplified toy versions with a little amount of observation files, and maybe also a lower truncation for ARPEGE.
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UPDATES.

- MITRAILLETTE and MITRARP need regularly to be updated because :
  - Change of machine.
  - Evolution of operational configurations. Validations must remain consistent with the operational environment (physics in particuliar).
  - Need to update namelists at each cycle.
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  - New configurations may be worth to be regularly validated.
- Around one update per year for environment aspects other than namelists, but no more.
  Last updates : april 2009, april 2010.
  Next expected update : early 2011.
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