Standalone analyses packages development in FCCAnalyses

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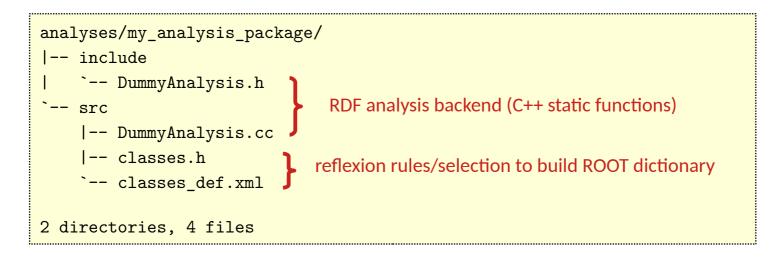
Case studies analysis packages

To ease interaction with various groups developing performance studies (e.g. HEP-FCC/FCCeePhysicsPerformance), development of a "standalone" analysis package skeletton to be filled by analysts.

Current WIP implementation: HEP-FCC/FCCAnalyses#199. General idea:

- Provide a dedicated directory (`analyses`) scanned at FCCAnalyses compile time through a set of CMake directives

- If a package (= directory with `src` + `include` subdirs) is found, build a shared library linked against FCCAnalyses

- Base analysis content:

```
analyses/my_analysis_package/
|-- include
|    `-- DummyAnalysis.h        }  RDF analysis backend (C++ static functions)
`-- src
     |-- DummyAnalysis.cc
     |-- classes.h              }  reflexion rules/selection to build ROOT dictionary
     `-- classes_def.xml

2 directories, 4 files
```

Case studies analysis packages

Added a new `setup` mode to `fccanalysis` utility to generate basic analysis package:

```
usage: fccanalysis setup [-h] [--script SCRIPT] [--author AUTHOR] [--standalone] [--output-dir OUTPUT_DIR] name

optional arguments:
  -h, --help             show this help message and exit

User options:
  name                   name of the analysis to be built
  --script SCRIPT        name of the main analysis utilitary script
  --author AUTHOR        author's "name <email@address>" (will use git-config if not specified)
  --standalone           also add CMake directive to build standalone package
  --output-dir OUTPUT_DIR
                         output directory where the analysis package will be written
```

With a combination of `--output-dir` and `--standalone`, allows to store the output package outside "common" area, e.g. to work on it externally.

Generates a `CMakeLists.txt` set of directives to build the shared object, ROOT dictionary files, and set of includes required by RDF.

Work in progress

- Properly handle CI cases for packages: either for an example package already present in directory, or by generating a new standalone package

  – With CI integration of test analysis package, a spurious, "unreproducible-outside-CI" (i.e. with local `ctest` run) error occurs, still under investigation

- Leave the possibility for the user to select which packages require compilation. Several possibilities for implementation, for instance:

  – manually (list of `make FCCAnalysis_xxx`),

  – defining a set of dependencies at runtime, and leaving the `fccanalysis` script to build the object in background