

Package specific job options for LHCb applications

Requirements

1. It should be possible to run a given version of an application with sensible defaults, both interactively and in batch.
2. It should be possible to run a given version of an application in a reproducible manner (i.e. with a well defined and coherent set of default options).
3. It should be possible for a user to easily modify job options when running the application
4. It should be possible for sub-detector developers to release algorithms with a coherent set of job options, independently of the release schedule of the application.
5. It should be possible for sub-detector developers to execute their packages independently of LHCb applications, without having to modify the released packages.
6. It should be possible to submit an application to a batch machine that is not aware of the LHCb AFS environment

Convention

- Sub-detector algorithms should initialize job options to sensible defaults in the code, as part of their declaration (usually in the constructor)
- If the coded defaults are not sufficient (e.g. different options for DaVinci and Brunel), the sub-detector package should provide one or more job options files as part of the package. These files should:
 - Reside in the directory \$MYPACKROOT/options (where MYPACKROOT is the root directory of the package, as defined by CMT)
 - The files should have sensible and unique names. For example:
 - MyPackDaVinci.opts and MyPackBrunel.opts (if different settings are necessary for the two programs)
 - MyPackv200601.opts and MyPackv200507.opts (if different settings are necessary for different geometries)
 - The files should only contain options that are different from the coded defaults
 - The files must not contain the job option required by the ApplicationMgr to load the DLL of the package. It should be left to the application to correctly load the appropriate DLLs.
 - The files must not contain the job options required to add the algorithms to the correct processing sequence. It should be left to the application to declare and correctly sequence the algorithms. It is permitted to supply a separate file to configure the sequence, which the application is then free to use or not use if it wishes

This convention fulfils the above requirements as follows:

1. A given version of the application uses a given released version of a sub-detector package, and picks up the defaults from the package itself.
2. Since a released version of an application will only use released packages, the default options of the constituent packages are, by definition, frozen.
3. Users are always free to over-ride the values of job options in included files by simply re-declaring the options later in their job options file.
4. By putting the job options in the same package as the algorithm, one ensures consistency of the options.
5. This is possible because the options provided with the algorithms explicitly exclude specific structural items (such as DLL and Sequence declarations).
6. Such a job will need to export to the batch machine all the included job options files. Since the file names are unique they can be installed in a single options directory, and if necessary redefine the various PACKAGEROOT environment variables accordingly.