Batch Media File Renamer

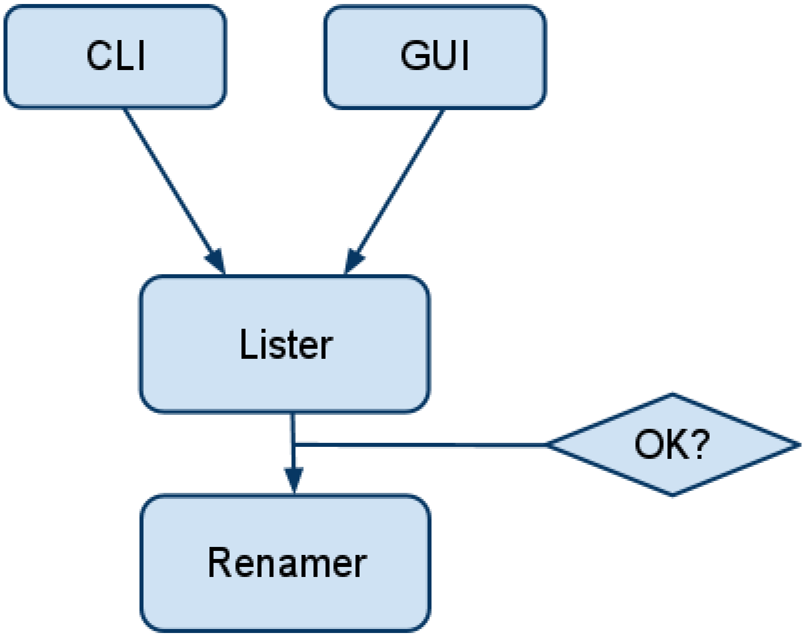
Overview

Most media files are created by various devices. We each probably have more than one digital camera and video camera. Each device has its own file naming standard. When files from various devices are grouped together into our single hard disk we will see the myriad of meaningless names.
BMFR is a tool to rename media files in a format that you can define.

Requirements

1. I want to selectively rename one file or multiple files.
2. I want to collectively rename all files in one directory or multiple directories.
3. I want command line and graphical interfaces.

Design



Lister takes a request which can be from Command Line Interface or Graphical User Interface. The request contains a list of files or folders whose files are to be renamed. It can optionally specifies the target name format. By default the format is yyyyMMdd_hhmmss. It then outputs new names before the requested files are renamed. This gives the chance to the user to confirm or cancel the operation. It must report any potential error such as name conflict that may result from the renaming.
Renamer performs the actual operation. To improve performance it can run the job based on the list from Lister instead of processing the requested files again. It is possible that some of the requested files are deleted or renamed, or new files are added to the requested

folders, after Lister outputs the list but before Renamer operates on it. Reporter must report any error it encounters. Files that fail to be renamed must revert to their original names. Note that this batch operation is not done in a transaction, i.e. all or nothing. Files that can be renamed will be renamed, those that fail will be reverted.

Lister

Input	• List of files and folders to be renamed • (optional) name format
Action	• Examines the media type of each file and extracts the necessary information from its metadata in order to generate the new name
Output	• A map of old-new names for each file including those in the requested folders • A list of potential errors

To support the various number of media types the design must support plugins. The Lister will pass each file to each plugin which will process the file if it is the right handler. Issue with this approach: the Lister must iterate through available plugins. It is very likely that files in a folder be of the same media type. It is therefore necessary to have a prioritised plugin list. When a plugin is recently used it will move to the top of the list.
Another approach is to have a dedicated media type examiner. It determines and invokes the right plugin for a media type. This method is hard to maintain as the number of supported media types grow. It is also inevitable that the dedicated examiner will engage individual plugins to determine their capabilities, hence the same issue with iteration above.
Possible errors:

- Filename conflict error - if the new name of a file conflicts with the new name of another file.
- File not found error - if a file is deleted or manually renamed before the Lister starts.

Renamer

Input	• A map of old-new names for each file including those in the requested folders
Action	• Renames files in the input map
Output	• A list of errors encountered

Possible errors:

- File permission error - if the user does not have the right permission to rename a file. The Lister does not report this error.
- File not found error - if a file is deleted or manually renamed before the Renamer starts.
- What about files manually added before the actual renaming starts? These files are not in the input map, therefore the Renamer does not know about them. Should the Renamer traverse the requested folders again?