1 Input Output Redirection in Linux

Every process in Linux has an input (standard input), stdin and 2 outputs (standard output), stdout and the error output, stderr. Normally, the standard input is the keyboard and the output standard is the screen. Likewise, if some error happened in the execution of the process, the error output would be the screen as well. However, it is possible to change the standard input, the standard output and error output using redirections:

- $<$ $\Rightarrow$ it is used in order to redirect the standard input replacing it by the indicated file. For example: wc $<$ filename
- $>$ $\Rightarrow$ it is used to redirect the output of a process to the indicated file. You have to bear in mind that, this command will erase the previous content of the file.

  For example: echo hello $>$ filename

  The command echo write the argument (in that case hello) to standard input but this time the redirection gives the word to the filename.
- $>>\Rightarrow$ it is used to do the same that the previous command but this time the information will be added to the previous information.
- 2$>$ $\Rightarrow$ the error output will be redirect to the indicated file. The previous information in the file will be erased.

  For example: cp file1.txt file2.txt 2$>$ /dev/null

  If some error took place, the information would not be displayed. That information will be written in the file null at /dev directory.
- 2$>>\Rightarrow$ The error output will be redirected to the indicated file but this time the information will be added to the previous information.

In all the cases if the file doesn't exist, it will be created. With the redirect and *cat* and *sort* command it is possible to concatenate files.

Examples

1. Create a file with cat command called new.txt. Write into it several words in several lines.

   ```
   cat > new.txt
   Shoes
   Knife
   Dog
   CTRL+D
   ```

2. Create a new file, newrd.txt with the sort command. Write into it the same words from the previous exercise.

   ```
   sort > newrd.txt
   Shoes
   Knife
   Dog
   CTRL+D
   ```

3. Check out if new.txt and newrd.txt are ordered.

```
sort -c new.txt
sort -c newrd.txt
```

Examples

1. Show the extended information content of the root directory (/) and redirect the standard output to a file of your personal directory called begin.txt.

   ```
   ls -l / > begin.txt
   ```

2. Try to show the information of ttt file of the root directory. It doesn't exist so an error message will be shown. Directionate the error output to error.log file.

   ```
   ls -l / > begin.txt
   ls /ttt
   ls /ttt 2> error.log
   ```