

Linux Spoken Tutorial Redirection and Pipes

Talk to a Teacher
National Mission on Education through ICT
<http://spoken-tutorial.org>

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Pre-requisites :



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- ▶ Ubuntu 10.04
- ▶ Please refer to spoken tutorials on <http://spoken-tutorial.org>



Important Information :

- ▶ **Linux is case sensitive.**



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- ▶ **Commands are in lower case unless otherwise mentioned**



Preliminaries

► Stream:



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- ▶ A Linux shell, such as Bash, receives input and sends output as sequences or streams of characters.
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▶ File Descriptor -

- ▶ Integer number



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- ▶ A Linux shell, such as Bash, receives input and sends output as sequences or streams of characters.
- ▶ Accessed using file IO techniques.
- ▶ Actual stream of characters may come from or go to a file

▶ File Descriptor -

- ▶ Integer number
- ▶ Associated with every open file of a process



The three standard streams

stdin

- ▶ It is the standard input stream.



The three standard streams

stdin

- ▶ It is the standard input stream.
- ▶ Provides input to commands



The three standard streams

stdin

- ▶ It is the standard input stream.
- ▶ Provides input to commands
- ▶ It has file descriptor 0



The three standard streams(Continued

stdout

- ▶ It is the standard output stream.



The three standard streams(Continued

stdout

- ▶ It is the standard output stream.
- ▶ Displays output from commands



The three standard streams(Continued

stdout

- ▶ It is the standard output stream.
- ▶ Displays output from commands
- ▶ It has file descriptor 1



The three standard streams(Continued

`stderr`

- ▶ It is the standard error stream.



The three standard streams(Continued

`stderr`

- ▶ It is the standard error stream.
- ▶ Displays error output from commands



The three standard streams(Continued

stderr

- ▶ It is the standard error stream.
- ▶ Displays error output from commands
- ▶ It has file descriptor 2



More about Streams

- ▶ **Input streams** provide input to programs



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- ▶ By default it takes from terminal keystrokes
- ▶ **Output streams** print text characters.
- ▶ By default to the terminal -text window on a graphical desktop
- ▶ we can change this default behaviour - **Redirection**



Redirection– Two ways

n>

- ▶ **Redirects output from file descriptor n to a file**



Redirection– Two ways

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- ▶ Redirects output from file descriptor **n** to a file
- ▶ Need write authority to the file.



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Redirection– Two ways

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- ▶ Redirects output from file descriptor **n** to a file
- ▶ Need write authority to the file.
- ▶ Destination file if does not exist - created
- ▶ Destination file if existed - **the existing contents are lost without any warning.**



Redirection(continued)

n>>

- ▶ **Redirects output from file descriptor n to a file**



Redirection(continued)

n>>

- ▶ Redirects output from file descriptor **n** to a file
- ▶ Need write authority to the file.



Redirection(continued)

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- ▶ Redirects output from file descriptor **n** to a file
- ▶ Need write authority to the file.
- ▶ Destination file if does not exist - created



Redirection(continued)

n>>

- ▶ Redirects output from file descriptor **n** to a file
- ▶ Need write authority to the file.
- ▶ Destination file if does not exist - created
- ▶ Destination file if existed - **the output is appended to the existing file.**



Redirection(continued)

- ▶ **Redirect stdout `>` or `>>`**
(same as) `1 >` or `1 >>`



Redirection(continued)

- ▶ **Redirect stdout** `> or >>`
(same as) `1 > or 1 >>`
- ▶ **Redirect stderr** `2 > or 2 >>`



Redirection(continued)

- ▶ **Redirect stdout** `> or >>`
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- ▶ **Redirect stderr** `2 > or 2 >>`



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- ▶ **Pipelining**



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- ▶ Connects the output of one command to the input of the next command



Pipes

- ▶ Manipulate and connect the different streams simultaneously.
- ▶ Pipelining
- ▶ Create chain of commands
- ▶ Connects the output of one command to the input of the next command
- ▶ It looks like
`command1 | command2 -option |
command3 -option1 -option2 |
command4`



Acknowledgement

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