Basics of Redirection

Talk to a Teacher Project
http://spoken-tutorial.org
National Mission on Education through ICT
http://www.sakshat.ac.in

FOSSEE & Spoken Tutorial Team
IIT Bombay

July 17, 2014

Learning Objectives

Learning Objectives

- **Input and output in Bash**

Learning Objectives

- **Input and output in Bash**
- **Redirection and file descriptors**

Learning Objectives

Learning Objectives

- **Standard input**

Learning Objectives

- **Standard input**
- **Standard output**

Learning Objectives

- **Standard input**
- **Standard output**
- **Standard error**

Learning Objectives

- **Standard input**
- **Standard output**
- **Standard error**
- **With the help of some examples**

Prerequisite

Prerequisite

- **Knowledge of Shell Scripting**

Prerequisite

- **Knowledge of Shell Scripting**
- **If not, for relevant tutorials please visit http://spoken-tutorial.org**

System Requirements

System Requirements

- **Ubuntu Linux 12.04 OS**

System Requirements

- **Ubuntu Linux 12.04 OS**
- **GNU Bash version 4.2**

System Requirements

- **Ubuntu Linux 12.04 OS**
- **GNU Bash version 4.2**
- **GNU Bash version 4 or above is recommended for practice**

Input and Output

- **Send output to a file or read input from a file**

Input and Output

- **Send output to a file or read input from a file**
- **Each shell command has its own input and output**

Input and Output

- Send output to a file or read input from a file
- Each shell command has its own input and output
- Redirected using a special notation

Redirection and file descriptors

Redirection and file descriptors

- Changing the default path of input or output

Redirection and file descriptors

- Changing the default path of input or output
- In GNU/Linux everything is a file, including the hardware

Redirection and file descriptors

Redirection and file descriptors

Common return values are:

Redirection and file descriptors

Common return values are:

- **0 for Input ie Keyboard**

Redirection and file descriptors

Common return values are:

- **0 for Input ie Keyboard**
- **1 for Output ie Screen**

Redirection and file descriptors

Common return values are:

- **0 for Input ie Keyboard**

- **1 for Output ie Screen**

- **2 for Error ie Screen**

Redirection and file descriptors

- **0, 1, 2 are POSIX numbers(FD)**

Redirection and file descriptors

- **0, 1, 2 are POSIX numbers(FD)**
- **A redirector opens above streams to talk to a user or a program**

Standard Input

Standard Input

- **Standard input is the default input method**

Standard Input

- **Standard input is the default input method**
- **Used by all commands to read input**

Standard Input

- **Standard input is the default input method**
- **Used by all commands to read input**
- **Is denoted by 0**

Standard Input

- **Standard input is the default input method**
- **Used by all commands to read input**
- **Is denoted by 0**
- **Is known as stdin(Standard input)**

Input Redirection

Input Redirection

- **Default standard input is the keyboard**

Input Redirection

- **Default standard input is the keyboard**
- **$<$ is the input redirection symbol**

Input Redirection

- **Default standard input is the keyboard**
- **$<$ is the input redirection symbol**
- **Syntax:** `command < filename`

Standard Output

Standard Output

- **Displays output**

Standard Output

- **Displays output**
- **Default output is displayed on the screen**

Standard Output

- Displays output
- Default output is displayed on the screen
- Is denoted by 1

Standard Output

- **Displays output**
- **Default output is displayed on the screen**
- **Is denoted by 1**
- **Is known as stdout(Standard output)**

Output Redirection

Output Redirection

- $>$ **is output redirection symbol**

Output Redirection

- $>$ **is output redirection symbol**
- **Syntax:** `command > filename`

Standard Error

Standard Error

- **Standard error is the default output error**

Standard Error

- **Standard error is the default output error**
- **Used to write all system errors**

Standard Error

- **Standard error is the default output error**
- **Used to write all system errors**
- **Is denoted by 2**

Standard Error

- Standard error is the default output error
- Used to write all system errors
- Is denoted by 2
- Is known as stderr(Standard error)

Error Redirection

Error Redirection

- **Default standard error output is visible on the screen or monitor**

Error Redirection

- **Default standard error output is visible on the screen or monitor**
- **$2>$ is error redirection symbol**

Error Redirection

- **Default standard error output is visible on the screen or monitor**
- **2> is error redirection symbol**
- **Syntax:** `command 2> error.txt`

Summary

Summary

- **Input and output in Bash**

Summary

- **Input and output in Bash**
- **Redirection and file descriptors**

Summary

Summary

- **Standard input using <**

Summary

- **Standard input using <**
- **Standard output using >**

Summary

- **Standard input using** <
- **Standard output using** >
- **Standard error using** 2>

Assignment

Assignment

- **Write a program in any language like C, C++, java**

Assignment

- Write a program in any language like C, C++, java
- And redirect the output or error to a new file

Assignment

Assignment

- **Create a text file with some content like your name, address**

Assignment

- ▶ **Create a text file with some content like your name, address**
- ▶ **Redirect the content to a new file**

About the Spoken Tutorial Project

- Watch the video available at http://spoken-tutorial.org /What_is_a_Spoken_Tutorial
- It summarizes the Spoken Tutorial project

About the Spoken Tutorial Project

- Watch the video available at http://spoken-tutorial.org /What_is_a_Spoken_Tutorial

- It summarizes the Spoken Tutorial project

- If you do not have good bandwidth, you can download and watch it

Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- **Conducts workshops using spoken tutorials**

- **Gives certificates to those who pass an online test**

- **For more details, please write to contact@spoken-tutorial.org**

Acknowledgment

- **Spoken Tutorial Project is a part of the Talk to a Teacher project**
- **It is supported by the National Mission on Education through ICT, MHRD, Government of India**
- **More information on this Mission is available at http://spoken-tutorial.org /NMEICT-Intro**