# Week 9 Linux Projects - Working with the Shell

Activities

[Week 9 Linux Projects - Working with the Shell 1](#_Toc171861562)

[Update Kali Linux 1](#_Toc171861563)

[Project 7-1: Redirect stdout and stderr to a File 1](#_Toc171861564)

[Project 7-2: Redirect stdout and stdin using pipe metacharacters 4](#_Toc171861565)

[Assignment Submission 5](#_Toc171861566)

**How to Create Screenshots:** Please use the Windows Snip and Sketch Tool or the Snipping Tool. Paste a screenshot of just the program you are working on. If you are snipping a virtual machine, make sure your focus is outside the virtual machine before you snip.

1. Press and hold down the **Windows key** & **Shift**, then Type **S.** This brings up the on-screen snipping tool.
2. Click and Drag your mouse around whatever you want to snip.
3. Release the mouse button. This places the snip into the Windows Clipboard.

Go into Word or wherever you want to paste the snip. Hold down **CTRL**, then Type **V** to paste the snip.

## Update Kali Linux

In Kali Linux in the terminal.

|  |
| --- |
| sudo apt update  sudo apt dist-upgrade -y |

# Project 7-1: Redirect stdout and stderr to a File

Time required: 30 minutes

In this hands-on project, you use the shell to redirect the stdout and stderr to a file and take stderr from a file.

1. Log in to the terminal as user.
2. Type **touch sample1 sample2** and press **Enter** to create two new files named sample1 and sample2 in your home directory.
3. Verify their creation by typing **ls** Press **Enter**.
4. Type **ls -l sample1 sample2 sample3** and press **Enter**.
5. Is there any stdout displayed on the terminal screen? Is there any stderr displayed on the terminal screen? Why?

Click or tap here to enter text.

1. Type **ls -l sample1 sample2 sample3 > file** and press **Enter**.
2. Is there any stdout displayed on the terminal screen? Is there any stderr displayed on the terminal screen? Why?

Click or tap here to enter text.

1. Type **cat file** and press **Enter**.
2. What are the contents of the file and why?

Click or tap here to enter text.

1. Type **ls -l sample1 sample2 sample3 > file** and press **Enter**.
2. Is there any Standard Output displayed on the terminal screen? Is there any Standard Error displayed on the terminal screen? Why?

Click or tap here to enter text.

1. Type **cat file** and press **Enter**.
2. What are the contents of the file and why? Were the previous contents retained? Why?

Click or tap here to enter text.

1. Type **ls -l sample1 sample2 sample3 > file 2> file2** and press **Enter**.
2. Is there any stdout displayed on the terminal screen? Is there any stderr displayed on the terminal screen? Why?

Click or tap here to enter text.

1. Type **cat file** and press **Enter**.
2. What are the contents of the file and why?

Click or tap here to enter text.

1. Insert a screenshot.

Click or tap here to enter text.

1. Type **cat file2** and press **Enter**.
2. What are the contents of file2 and why?

Click or tap here to enter text.

1. Insert a screenshot.

Click or tap here to enter text.

1. Type **ls -l sample1 sample2 sample3 > file 2>&1** and press **Enter**.
2. Is there any stdout displayed on the terminal screen? Is there any stderr displayed on the terminal screen? Why?

Click or tap here to enter text.

1. Type **cat file** and press **Enter**.
2. What are the contents of the file and why?

Click or tap here to enter text.

1. Type **ls -l sample1 sample2 sample3 >&2 2> file2** and press **Enter**.
2. Is there any stdout displayed on the terminal screen? Is there any stderr displayed on the terminal screen? Why?

Click or tap here to enter text.

1. Type **cat file2** and press **Enter**.
2. What are the contents of file2 and why?

Click or tap here to enter text.

1. Insert a screenshot.

Click or tap here to enter text.

1. Type **date >> file** and press **Enter**.
2. Type **cat file** and press **Enter**.
3. What are the contents of the file and why?

Click or tap here to enter text.

1. Type **date >> file** and press **Enter**.
2. Type **cat file** and press **Enter**.
3. What are the contents of the file and why? Can you tell when each date command was run?

Click or tap here to enter text.

1. Type **exit** and press **Enter** to log out of your shell.

# Project 7-2: Redirect stdout and stdin using pipe metacharacters

Time required: 20 minutes

In this hands-on project, you redirect stdout and stdin using pipe metacharacters.

1. Log in to the terminal as user.
2. Type **cat /etc/services** and press **Enter** to view the /etc/*services* file.
3. Type **cat /etc/services | less** and press **Enter** to perform the same task page-by-page.
4. Explain what the | metacharacter does in the previous command. How is this different from the **less /etc/services** command?

Click or tap here to enter text.

1. Type **cat /etc/services | grep -i NFS** and press **Enter**.
2. How many lines are displayed? Why did you not need to specify a filename with the grep command?

Click or tap here to enter text.

1. Type **cat /etc/services | grep -i NFS | tr n N** and press **Enter**.
2. Explain the output on the terminal screen.

Click or tap here to enter text.

1. Type **cat /etc/services | grep NFS | tr n N | sort -r** and press **Enter**.
2. Explain the output on the terminal screen.

Click or tap here to enter text.

1. Type **cat /etc/services | grep ntp | tr n N | sort -r | tee file** and press **Enter**.
2. Explain the output on the terminal screen.

Click or tap here to enter text.

1. Type **cat file** and press **Enter**.
2. What are the contents? Why? What does the tee command do in the pipe above?

Click or tap here to enter text.

1. Type **cat /etc/services | grep NFS | tr n N | sort -r | tee file | wc -l**Press **Enter**.
2. Explain the output on the terminal screen.

Click or tap here to enter text.

1. Type **cat file** and press **Enter**.
2. What are the contents and why?

Click or tap here to enter text.

1. Type **cat /etc/services | grep NFS | tr F f | sort -r | sed /udp/d | sed /tcp/s/mount/MOUNT/g** and press **Enter**.
2. Explain the output on the terminal screen. Can this output be obtained with the grep and tr commands instead of sed?

Click or tap here to enter text.

1. Type **cat /etc/hosts**
2. Type **cat /etc/hosts | awk ' /localhost/ {print $1, $3}’** and press **Enter**.
3. Explain the output on the terminal screen.

Click or tap here to enter text.

1. Type **exit** and press **Enter** to log out of your shell.

## Assignment Submission

Submit this completed document in Blackboard.