“Київський коледж зв’язку”

Циклова комісія Комп’ютерної інженерії

**ЗВІТ ПО ВИКОНАННЮ**

**ЛАБОРАТОРНОЇ РОБОТИ №4**

з дисципліни: «Операційні системи»

Тема: “Команди Linux для управління процесами”

Виконали студенти

групи РПЗ-93А

Макаренко Данило

Нємєчкін Максим

Перевірив викладач

Повхліб В.С.

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Мета роботи:

1. Отримання практичних навиків роботи з командною оболонкою Bash.

2. Знайомство з базовими діями при роботі з довідкою.

3. Знайомство з базовими діями при роботі з файлами та каталогами.

Матеріальне забезпечення занять

1. ЕОМ типу IBM PC.

2. ОС сімейства Windows (Windows 7).

3. Віртуальна машина – Virtual Box (Oracle).

4. Операційна система GNU/Linux – CentOS.

5. Сайт мережевої академії Cisco netacad.com та його онлайн курси по Linux

Завдання для попередньої підготовки

***Готував матеріал студент Макаренко Д.А.***

## *What commands for monitoring the state of processes do you know. How to view their possible parameters?*

## [root @ oracle] # top (This is a basic command that most system administrators use in their daily work.)

## yum install htop (It comes with an interactive shell, and you can stop processes by simply going to them and pressing the desired button.)

## yum install nethogs (It shows all ports open to different IP addresses on the Internet, and tracks the amount of bandwidth (speed) on each open connection.)

## *1.2 Can the ps command monitor the status of processes in real time?*

## It does not support interactive mode, but has many options for configuring the output of certain process parameters in Linux. PS has many options, but usually most users use either ps aux or ps -ef to collect information about running processes.

## *1.3 By what parameters is it possible to sort processes in the top command? How to switch between them?*

## To perform top memory sorting (% MEM), simply enter Shift + M in top command mode. If you're interested in which process works the longest, press Shift + T and you'll see what's interesting in the TIME + column. You can sort the processes by their number (PID) by typing Shift + N on the keyboard.

## Use Shift + P to return to the CPU usage sort mode.

## *1.4. What commands do you know to complete the processes?*

## Killall command - completes all processes started with the specified command

## *3.1. What filter commands do you know?*

## sort [-options] [path] (sort alphabetically)

## cut [-options] (this is a good command that can be used if your content is divided into columns and you only need certain fields)

## sed <expression> [path] (allows you to efficiently search and replace our data)

## *3.2. What are regular expressions and base patterns, what are they used for?*

## Regular expressions are a very powerful tool for finding text by pattern, processing and changing lines, which can be used to solve many problems. Here are the main ones:

## • Search and replace text in a file;

## • Batch file renaming;

## • Interact with services such as Apache;

## • Check the string for pattern matching.

## *3.3. What basic network configuration commands do you know?*

## Ifconfig (The ifconfig (interface configurator) command is used to initialize the interface, assign an interface IP address, and enable or disable the interface on demand)

## Ping (PING (Packet INternet Groper) command - the best way to check the connection between two nodes)

## TRACEROUTE (traceroute is a network troubleshooting utility that shows the number of transitions received to the destination and also determines the paths of packet travel)

## *3.4. What package management systems do you know why you need them?*

## Dpkg is the basic package management system in Debian. Can be used to install, uninstall, store and retrieve information about .deb packages.

## Synaptic is a graphical linux package manager written in GTK and uses apt as a backend.

## Хід роботи

***Готував матеріал студент Нємєчкін М.Д.***

***1. What is the difference between the background process and the usual. Where are they used?***

Some programs run in the background, which, with the help of special settings, do not require direct activation by the user. And work without his management and intervention.

***2. Describe the following commands and explain what they do - the jobs, bg, fg command.***

• Jobs displays a list of background processes

• fg number brings the process to the fore

• bg number puts the process in the background

The fg and bg commands without the job number will work with the current one.

***3. Which command can view information about running background processes and tasks?***

You can get information about the correspondence between the job number and the process ID using the jobs -l command

***4. How to suspend the background process, how to resume it and restart if necessary?***

The process in the foreground can be paused with Ctrl + Z, and then resumed running in the background at (bg <jobid>.)

**Question control**

***Готував матеріал студент Нємєчкін М.Д.***

***1. What is the purpose of the / proc directory on Linux systems. What information does it store?***

/ proc is not a real file system. It is virtual. Its main task is to obtain the state of the system and partially perform control actions.

Process information is stored in the / proc / N directory, where N is the numeric process identifier. This directory contains various pseudo-files that contain information about the process itself and the associated environment.

***2. How to dynamically determine which of any three processes is currently current***

***Uses the most memory? What percentage of memory does it consume?***

***3. How to get a hierarchy of parent processes in Linux systems? Give its structure and describe.***

Linux has a clear hierarchy of processes in the system. Each process in the system has only one parent and can have one or more generated processes.

In UNIX, there is only one system call to create a new process - fork. This call creates an exact copy of the parent process (parent and child, have the same memory image, single configuration description lines, and the same open files).

***4. How is the top command different from ps?***

top - allows you to see your processes sorted by the amount of CPU power they use. ps - allows you to see all your processes or only the processes used by certain users, such as root or you.

top - should be used to see which processes are most active, ps - can be used to see which processes you (or any other user) are currently running.

***5. What additional features does htop implement compared to top?***

Like top, the program works in console mode, but has a number of features:

• Free vertical and horizontal scrolling of the list of processes;

• You can use the mouse to control;

• To complete the process or change the priority of execution, it is not necessary to enter the PID, just move the cursor to it;

• Visual tools for evaluating the performance of SMP and the use of each processor core, including for systems with a large number of processor cores;

• Existence of a tree-like mode of viewing the list of processes;

• Support for visual themes and flexible interface customization capabilities;

• Support for work on monochrome terminals;

• Ability to filter processes by owners and various parameters;

• Ability to configure the affinity CPU

***6. Describe the components of your mobile OS that allow you to monitor the processes running in the system?***

***7. Does your mobile system support terminal process management? If so, describe exactly how.***

***8. Is it possible to install third-party software that will allow you to organize the management and monitoring of processes in your mobile phone. Briefly describe them.***

**Висновок**

***Готував матеріал студент Макаренко Д.А.***

Під час виконання лабораторної роботи ми отримали практичні навички роботи з командною оболонкою Bash, ознайомились з базовими діями при роботі з довідкою, ознайомились з базовими діями при роботі з файлами та каталогами.