“Kyiv specialized College of Communications”

Commission of computer engineering

**REPORT ON THE IMPLEMENTATION**

**LABORATORY WORK №2**

From the discipline: "Operating systems"

**Topic: "Familiarize yourself with the working environment of virtual machines and operating systems of different families"**

The students

performed Groups RPZ-03

Team 3:

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Checked by the teacher

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***The material was prepared by student Kulikovska Maria (@Smith5004)***

1. Working in graphical mode in the Linux family of operating systems (working with Internet sources):

1.1. Select the graphical shell for the Linux family of operating systems that you want to consider. Consider the structure of the user workspace and describe its main components.

The main components of the Gnome shell:

Activities Overview

Using the grid button located on the dashboard, we get access to the application launcher.

Top Bar

The top bar is located at the very top of the screen. It provides application locations and menus, as well as controlling access to the calendar, volume control, networking, and a choice between keyboard input methods.

Dash.

This is a drag-and-drop list of icons for the user's favorite apps, the currently running app, and a "grid button" that can be used to select an arbitrary app, seen in the leftmost column

Message Tray

In this panel, you can view notifications sent by an application or system component. When a notification appears, it first appears briefly in the lower right corner of the screen.

Activity Menu.

This menu appears in the upper left and allows you to launch the application. This is a special mode that helps the user to organize the window and launch the Application.

Search Box.

Provides quick access through the graphical file manager to important menus in the user's home directory, to '/', and to export and share files on the network.

Applications tab

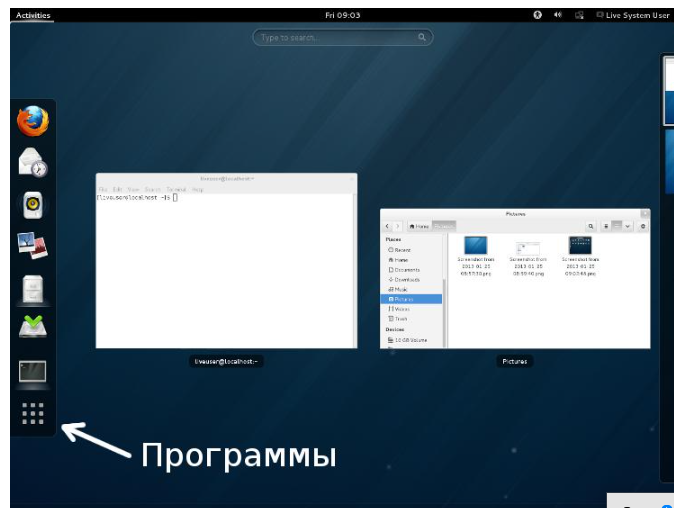
This tab lists all the programs you have downloaded.

***The material was prepared by student Kanavets Kateryna (@kanavetsk)***

1.2. Launching programs. Explore the possibilities of launching applications in different ways (describe the method and show screenshots if possible):

- Launch apps from the Quick Launcher

In the Quick Launcher, you can add shortcuts to frequently used programs. To launch an app that already has a shortcut in the Quick Launcher, just click the app's shortcut. If the application is not on the Quick Launcher, open the application, right-click on its shortcut in the taskbar, and select Add to Quick Launcher. Now the application shortcut will be available in the Quick Launcher, and you can launch the program by clicking on it.



- Launch programs by searching the menu

You can launch an application from the Applications menu in Gnome. Click the Apps icon on the left side of the taskbar to open the menu. In the search box at the top of the menu, type the name of the application you want to launch. When the program appears in the search result, click on its name to launch it.

- Launch programs using the launcher widget

Gnome has a launcher widget that allows you to launch programs by searching for them and launching them. To open the launcher, click on the Activators icon on the right side of the taskbar, or press Alt + F2. Enter the name of the program in the search field of the launcher widget and click on "Launch" to start the program.

- Launch programs from the global menu

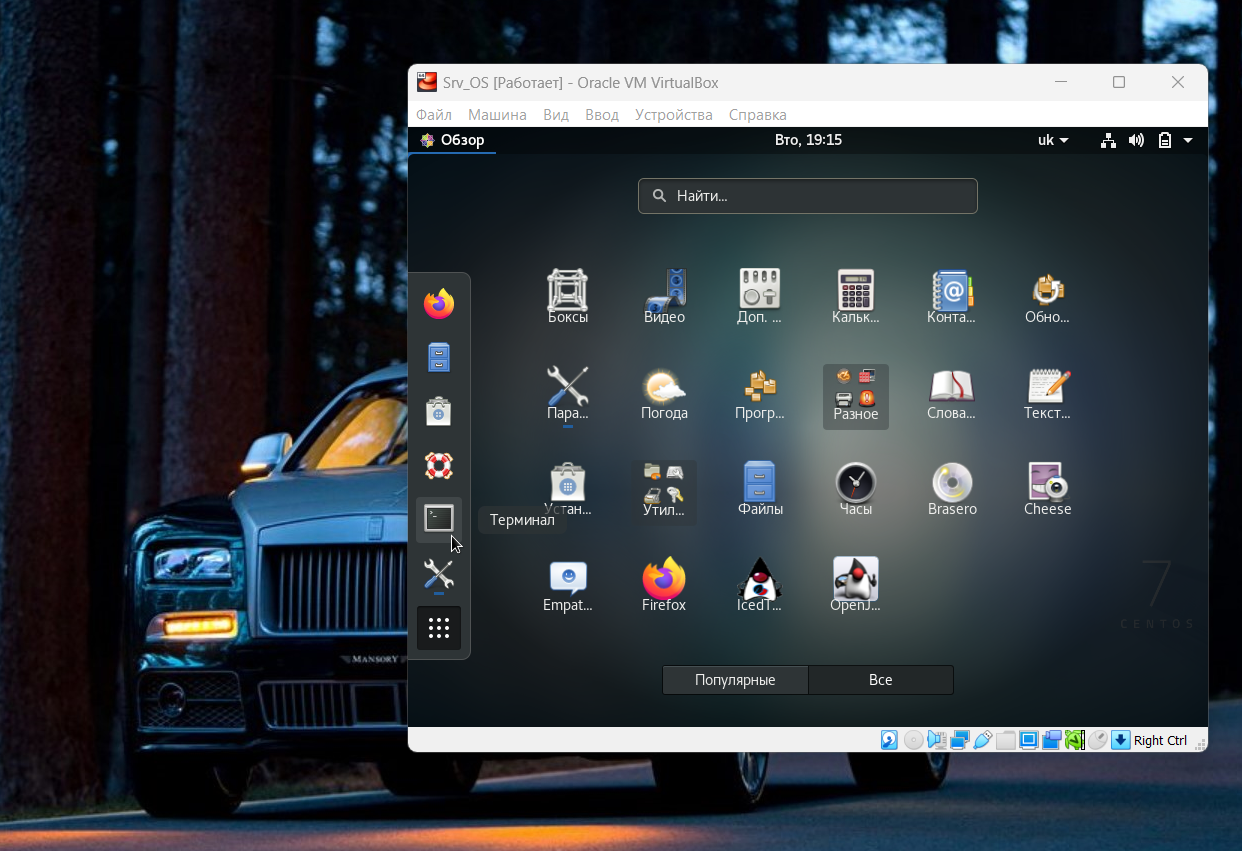
The Global Menu displays a list of available programs and their functions at the top of the screen. To open the global menu, click the Apps icon on the left side of the taskbar, and then click the name of the app category in which you want to find the app

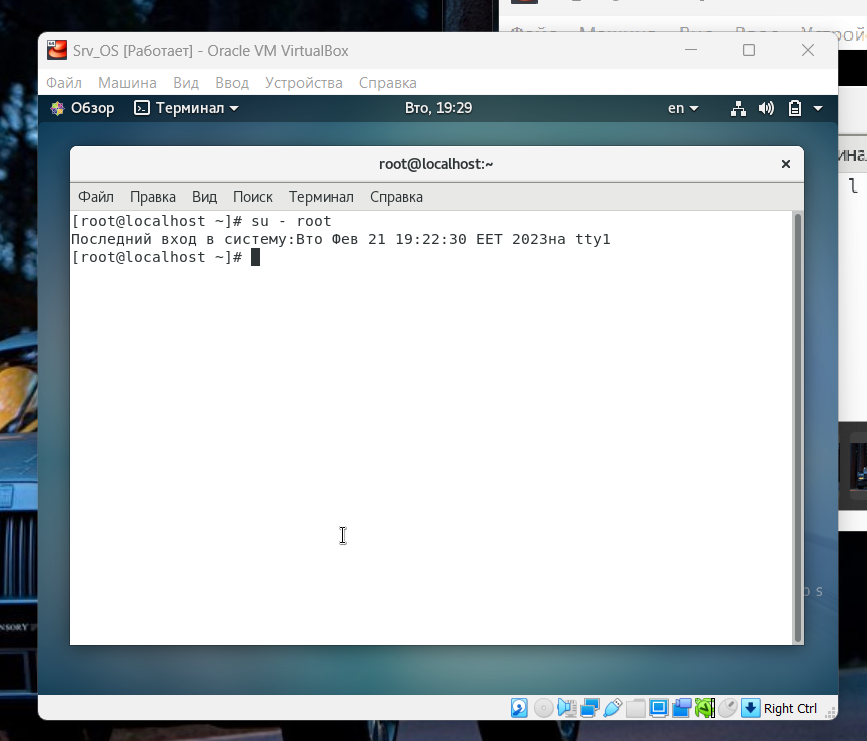
***The material was prepared by student Kulikovska Maria (@Smith5004)***

1.3. Logging out and shutting down Linux. How to perform the following actions in the graphical interface (provide screenshots):

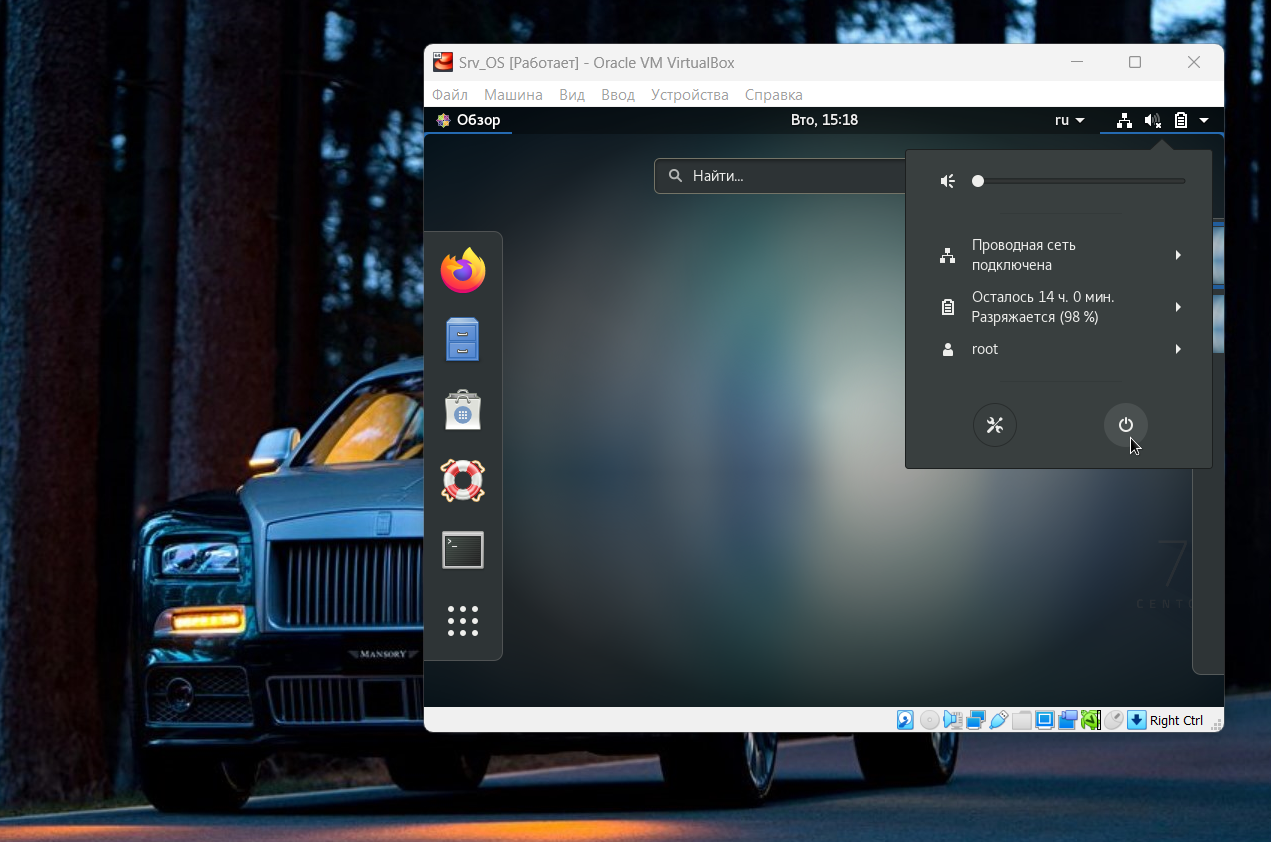
- Changing the user to root

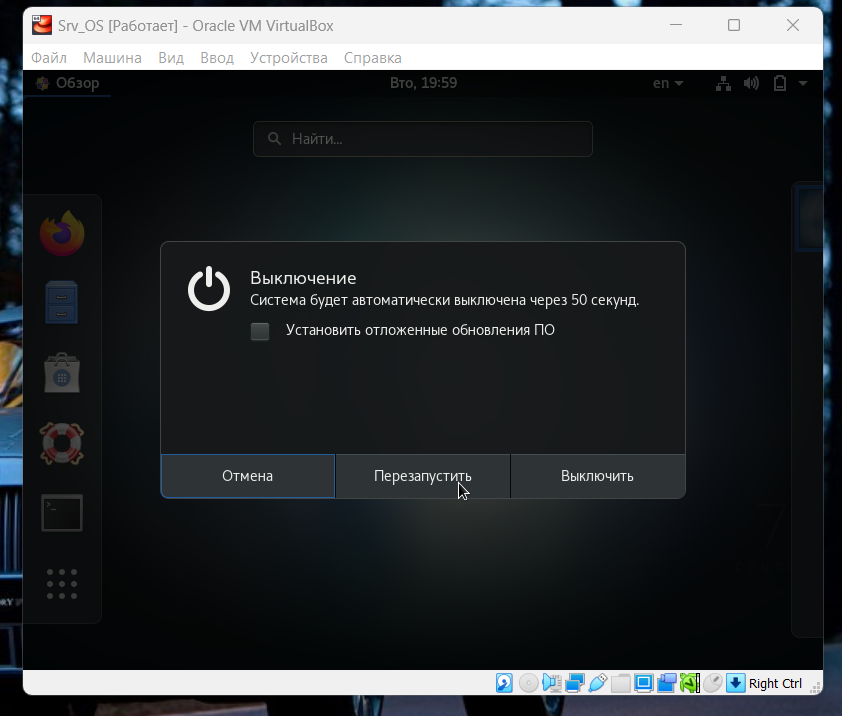
1) First, find the terminal



2) Then enter the su - root command. In this case, we will get information about the last login, since our user is root, otherwise we would have to enter the root password.

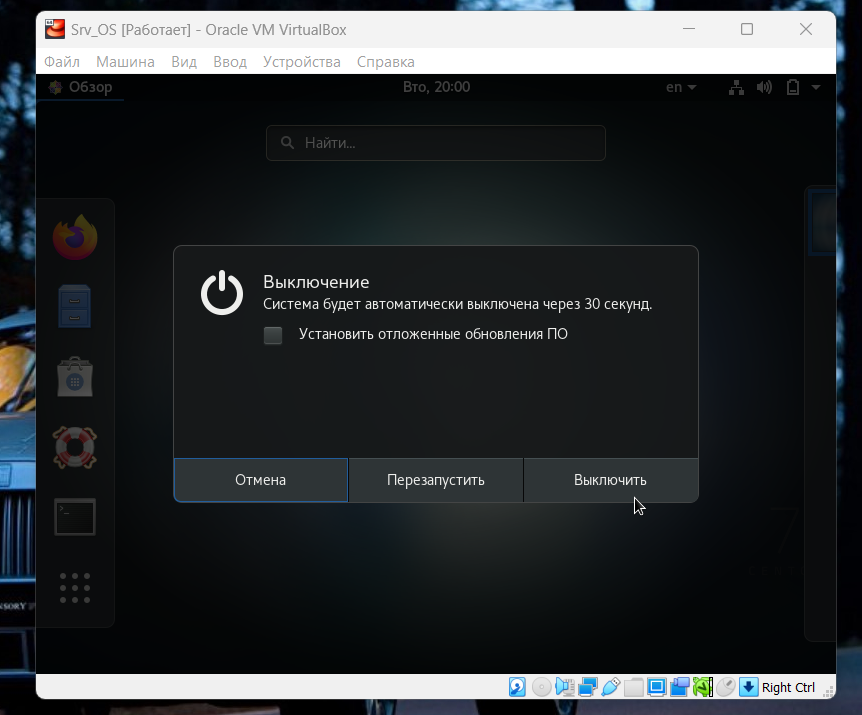
- Rebooting the system





- Shutting down the system

Do the same, but select Shutdown.



Definitions of the following terms:

-CLI mode.

The CLI is a programmatic interface used to access the device. It provides two command modes: operational (used to view information about the firewall or log collector, and to perform operations such as restarting, downloading configuration, or shutting down) and configuration (used to view and modify configuration).

GUI-based terminal

GUI terminals are terminals that can operate in both graphical and textual modes.

-Virtual terminal

A virtual terminal is a program that emulates the functionality of a classic terminal for accessing a server or corporate mainframe.

**2.** **Work in a mobile OS environment.**

***The material was prepared by student Кryvenko Andrew (AndrewKryvenko)***

1. Describe the main menu of your mobile OS, what kind of graphical interface does it use?

The iOS main menu is a grid of icons representing various applications and features available on the device. It uses a graphical user interface that is designed to be intuitive and user-friendly, with colorful icons and simple navigation.

1. Describe the settings menus for the components of your mobile phone.

The Settings menu in iOS is divided into several sections, each containing options for different components of the phone, such as Display & Brightness, Sounds & Haptics, Battery, and General. Within each section, there are options for customizing various settings, such as adjusting the brightness of the screen, changing the ringtone, or configuring Wi-Fi and Bluetooth connections.

1. Use keyboard shortcuts to perform special actions.

There are several keyboard shortcuts available in iOS to perform special actions. For example, pressing the Home button twice quickly will bring up the app switcher, allowing you to easily switch between open applications. Swiping down from the top-right corner of the screen will bring up the Control Center, which provides quick access to commonly used features such as Wi-Fi, Bluetooth, and AirDrop.

1. Logging in and shutting down the device. Features of battery power settings.

To log in to an iOS device, you typically need to enter a passcode or use Touch ID or Face ID if these features are enabled. To shut down the device, you can hold down the side button and either of the volume buttons until the "slide to power off" slider appears.

iOS provides several features for managing battery power settings. For example, you can turn on Low Power Mode to reduce power consumption and extend the battery life, or enable Optimized Battery Charging to slow the rate of battery aging. You can also view detailed information about your battery usage in the Battery section of the Settings menu, and enable Battery Health to monitor the health of your battery and receive notifications if it needs to be serviced.

**Control questions**

***The material was prepared by student Кryvenko Andrew (AndrewKryvenko)***

1. Provide examples of Linux server applications for a database server, a mail server, and a file sharing server.

Database server: MySQL, PostgreSQL, Oracle Database

Mail server: Postfix, Sendmail, Exim

File sharing server: Samba, NFS, FTP server

1. Compare the Bourne shell, C, Bourne Again (Bash), the tcsh, Korn shell (Ksh), and zsh.

The Bourne shell was the original Unix shell and is still used in some systems. C shell (csh) and its improved version tcsh have a similar syntax to C programming language. Bourne Again shell (bash) is the default shell in most Linux distributions and is a more advanced version of sh. Korn shell (ksh) was developed by David Korn and has a syntax similar to both sh and csh. Z shell (zsh) is an interactive shell that includes features from all of the above shells.

1. Why do you need a package manager. What package managers do you know in Linux?

A package manager is a tool that simplifies the process of installing, updating, and removing software packages in a Linux system. It ensures that all dependencies are met and manages conflicts between different software packages. Examples of package managers in Linux include apt, dpkg, yum, and pacman.

1. What security features are used in Linux?

Linux uses a variety of security features, including file system permissions, user authentication, encryption, firewalls, and access control lists (ACLs). Additionally, some Linux distributions come with built-in security features such as SELinux and AppArmor, which provide mandatory access controls for applications and services.

1. Why has the use of virtualization become so important now?

Virtualization has become important because it allows multiple virtual machines to run on a single physical machine, which can improve efficiency, reduce hardware costs, and increase flexibility. Virtualization can also help with testing and development, security, and disaster recovery.

1. How do you understand the concept of containerization?

Containerization is a method of running applications in isolated environments, called containers. Each container includes all the necessary dependencies and libraries, allowing it to run consistently across different environments. Containerization allows for better resource management, portability, and scalability of applications.

1. What are the advantages/disadvantages of using open source software?

Advantages of using open source software include cost savings, community support and collaboration, and greater flexibility and customization. Disadvantages can include lack of technical support, potential security risks, and potential compatibility issues.

1. \*\*\*How many active virtual consoles (terminals) can be in the process of Linux operation by default. How to call them and switch between them? What are some examples?

By default, Linux has six active virtual consoles, accessed by pressing Ctrl+Alt+F1 through F6. Users can switch between virtual consoles by pressing the same key combination.

1. \*\*\*Which virtual console (terminal) performs the function of a graphical shell?

The virtual console that performs the function of a graphical shell is typically accessed by pressing Ctrl+Alt+F7, although this can vary depending on the distribution.

10. \*\*\*Is it possible to register in a Linux system several times under the same system name? What

advantages can this provide?

It is possible to register multiple accounts with the same system name in Linux, but this is generally not recommended as it can cause confusion and potential conflicts with file permissions. The primary advantage of doing so would be to allow multiple users to share the same environment and settings.