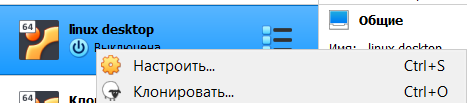
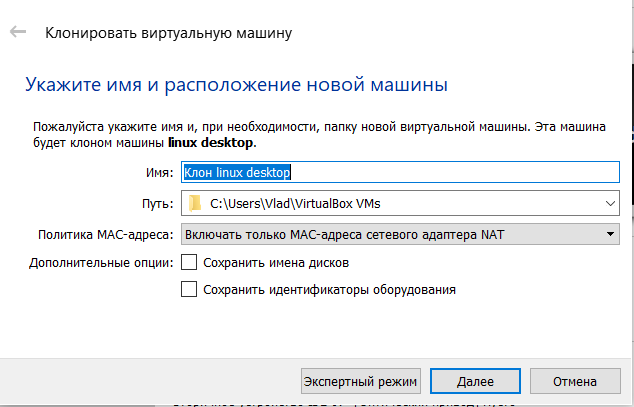
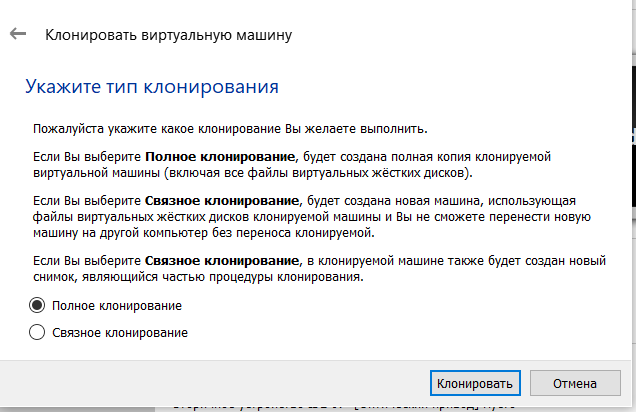
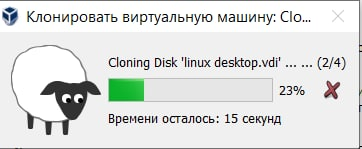
Work case 3  
  
  
Виконав Притула Владислав  
  
  
1. To clone a machine, we need to right-click on the virtual machine we want to clone and press "clone" or "Ctrl + O"  
  
  
  
  
  
Next, we need to specify the name of the machine to be cloned and select the path where we want this machine to be installed  
  
  
After that we can choose the type of cloning, but it is recommended to clone it completely  
Next, click "clone" and you're done  
  
  
  
  
Виконала Гоголь Анастасія  
  
2. В ході роботи одна робоча віртуальна машина може взаємодіяти з іншою. Для цього необхідно між ними розгорнути мережу. Опишіть які типи організації мережевих з’єднань підтримуються в середовищі віртуальних машин, в чому особливість кожного з них:  
- Трансляція мережевих адрес (NAT);  
- Мережевий міст (Bridged);  
- Віртуальний адаптер хоста (Host-only);  
- Внутрішня мережа (Internal Network).

VirtualBox has four ready-made models for connecting to a network:

1. Network Address Translation (NAT), which is the default setting
2. Network bridge (Bridged)
3. Virtual Host Adapter (Host Only)
4. Internal network (Internal Network)
5. Network Address Translation (NAT): NAT allows the guest OS to access the Internet using a private IP address that is not accessible from the outside network. This setting in the guest OS allows you to visit web pages, check email, and download files. But it is impossible to connect to this OS from the outside.

The principle of NAT: when the guest OS sends packets to a certain address of a remote machine on the network, the NAT service intercepts these packets, extracts from them the segments containing the destination address (IP address of the guest OS) and replaces them with the IP address of the host machine. Then repackages them and sends them to the specified address.

1. Network bridge (Bridged): In a Network Bridge connection, the virtual machine works just like any other computer on the network. In the connection, the adapter acts as a bridge between the virtual and physical networks. From the side of the external network, it is possible to connect directly to the guest OS. The adapter in "Network bridge" mode is connected, bypassing the host, to the device that distributes IP addresses inside the local network to all physical network cards. VirtualBox connects to one of the installed network cards and forwards packets through it directly; the operation of the bridge that transmits data is obtained. And a virtual machine on the network looks like an ordinary physical device, no different from others.
2. Virtual Host Adapter (Host Only): With a "Virtual Host Adapter" type connection, guest OSes can interact with each other and with the host. All this happens inside the VirtualBox virtual machine itself. In this connection, the host adapter uses its own dedicated device (name - vboxnet0). Also, a subnet is created for them and IP addresses are assigned to network cards of guest OSes. The "Virtual host adapter" mode provides a limited set of services useful for creating private networks under VirtualBox for guest OSes.
3. Internal network (Internal Network): The "Internal network" mode configures the relationship between several guest OSes running on the same host and can only communicate with each other. It has good system protection (than "Network Bridge"). An internal network is a software network that may be visible to selectively installed virtual machines, but not to applications running on the host or on remote machines located externally. Such a network is a set of a host and several virtual machines. That is, a private local network is created only for guest OSes without Internet access (which is very safe).