

Linux Servers

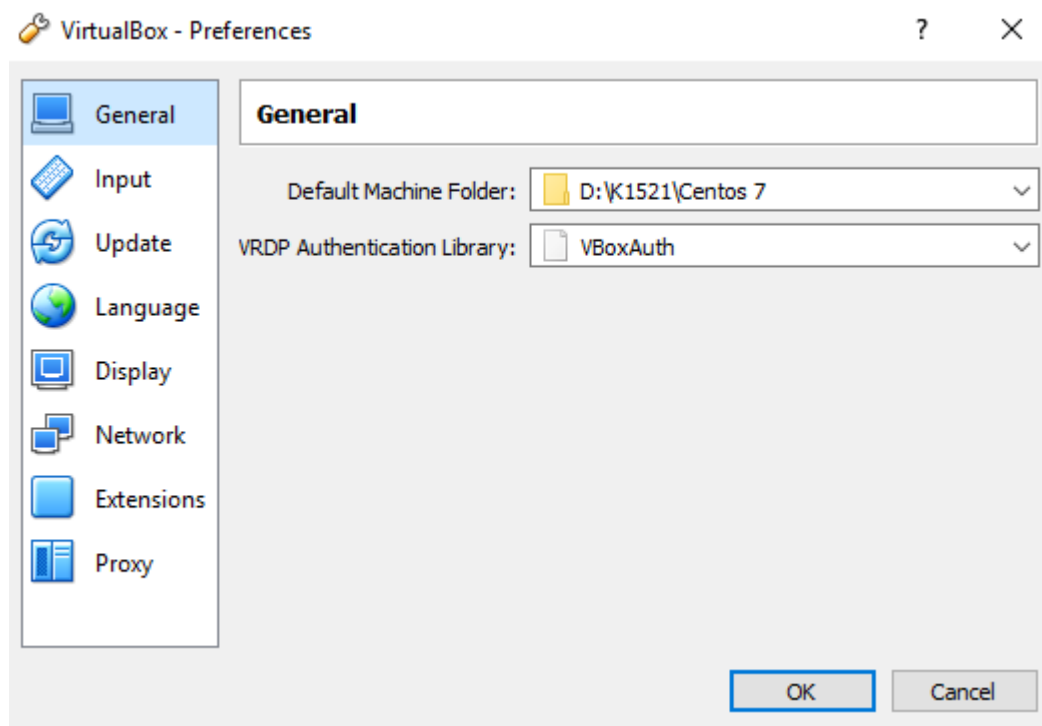
Classroom Assignment 1 – Initial labwork

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Document your commands or take screenshots. Answer questions in english or finnish.

1. Set default VM locations

Create a folder to D: with your student-Id and set VirtualBox to use this folder for the default VM location (File – Preferences – Default Machine folder). IT IS ESSENTIAL TO SET THIS OPTION FIRST. Otherwise the VMs will be stored in your profile and you will be unable to log out cleanly.



2. Template VM

Fetch the CentOS7 virtual machine template from network path

([\\ghost.labranet.jamk.fi\TEMP\TempJojuh\LinuxServers](http://ghost.labranet.jamk.fi/TEMP/TempJojuh/LinuxServers)) and copy it to your workstations D:

Do not double click and open the template from the network path! Copy it to your machine first.

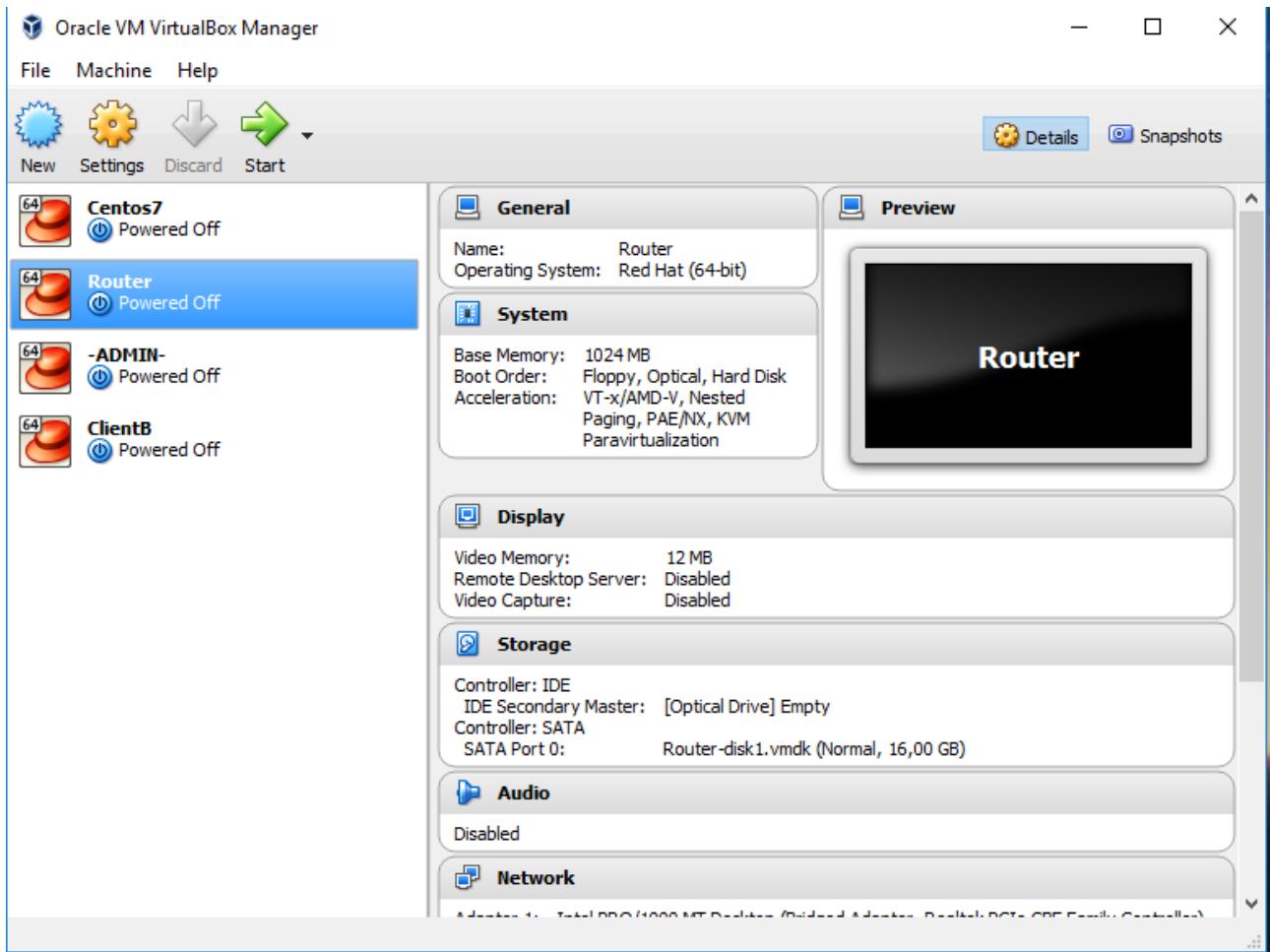
Import the machine to your VirtualBox (File – Import). Name the VM as CentOS7 Template. This machine will be used for cloning additional VMs for the duration of the course.

3. Cloning

Clone three new VMs from your template. Always check the “Re-Initialize MAC Address” checkbox, otherwise the machines will have same MAC addresses.

Name the machines Router, Admin and ClientB (Note: there will be no ClientA)

Here are the cloned machines:



4. Initial network config

Check that the Router VM has one network card connected to a bridged adapter. (Settings – Network – Adapter1 – Attached to: Bridged). Start the VM and log on, default credentials are **root / root66**

Check the default interface name with *ifconfig*. Also check that it has an IP address. If not, check the settings with *nmtui*. IPv4 address should be set to Auto and the "Automatically Connect" checkbox should be set. Check your VM bridging options and try *systemctl restart network*.

Also check that SSH daemon is on with *systemctl status sshd*. It should show as *active* and *loaded*. You can now connect to the VM with PuTTY for easier use.

First I restarted network and then checked what is the **sshd** status. The status was up and running:

```
[root@localhost ~]# systemctl status sshd
sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled)
   Active: active (running) since Fri 2016-09-09 09:38:19 EEST; 3min 1s ago
 Main PID: 1141 (sshd)
    CGroup: /system.slice/ssh.service
            └─1141 /usr/sbin/sshd -D

Sep 09 09:38:19 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
Sep 09 09:38:19 localhost.localdomain sshd[1141]: Server listening on 0.0.0.0...
Sep 09 09:38:19 localhost.localdomain sshd[1141]: Server listening on :: port...
Hint: Some lines were ellipsized, use -l to show in full.
[root@localhost ~]# _
```

5. Adding networks

Stop the VM with *poweroff*. Enable two more network adapters to the VM via Settings – Network. Set both new adapters as Internal network, Adapter 2 to *intnet* and Adapter 3 to *intnet2*. Start the VM again and check the new adapters with *ifconfig -a*. Compare the MAC addresses to the VirtualBox information and determine in which order the adapters are.

For the other VMs, set the Admin VM network adapter to *intnet* and ClientB to *intnet2*. The network configuration will be done later during the course but your classroom topology is now following:

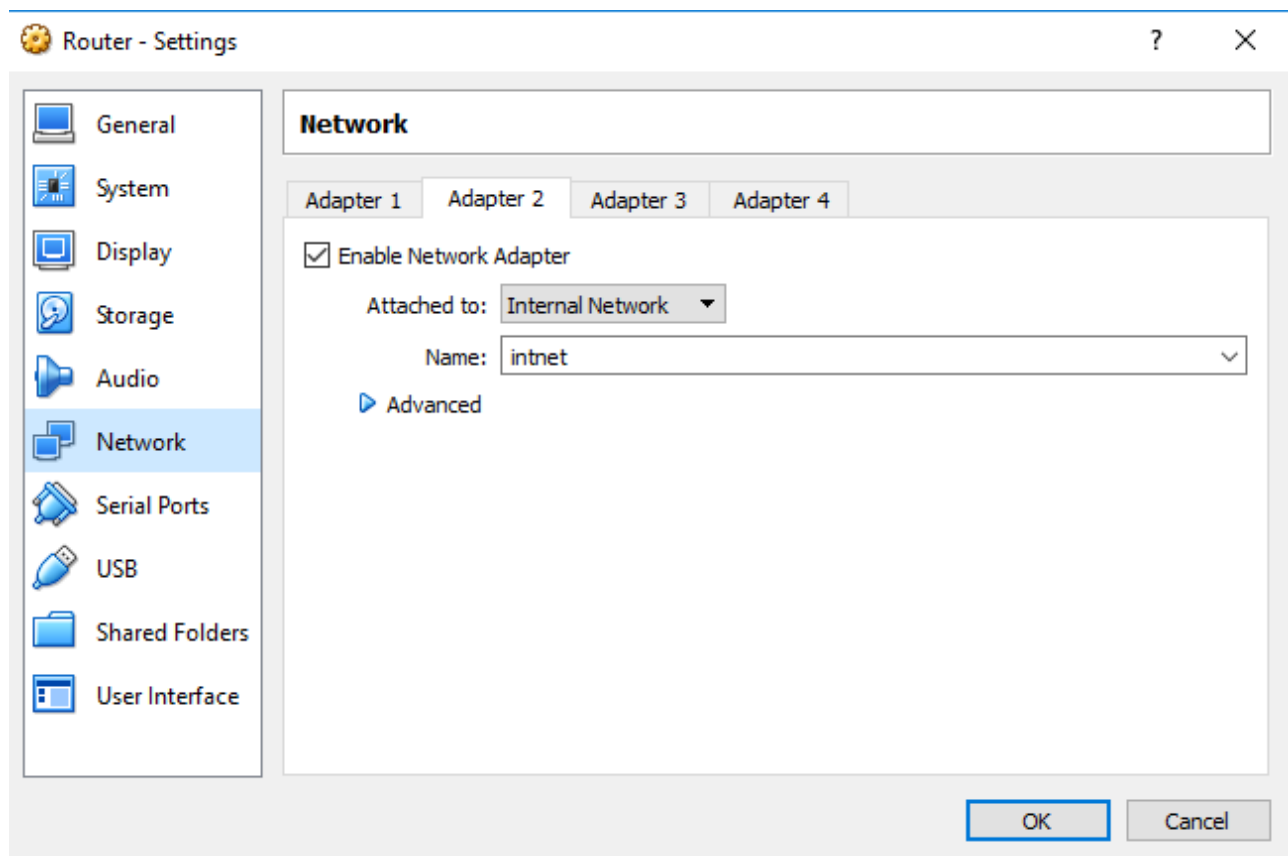
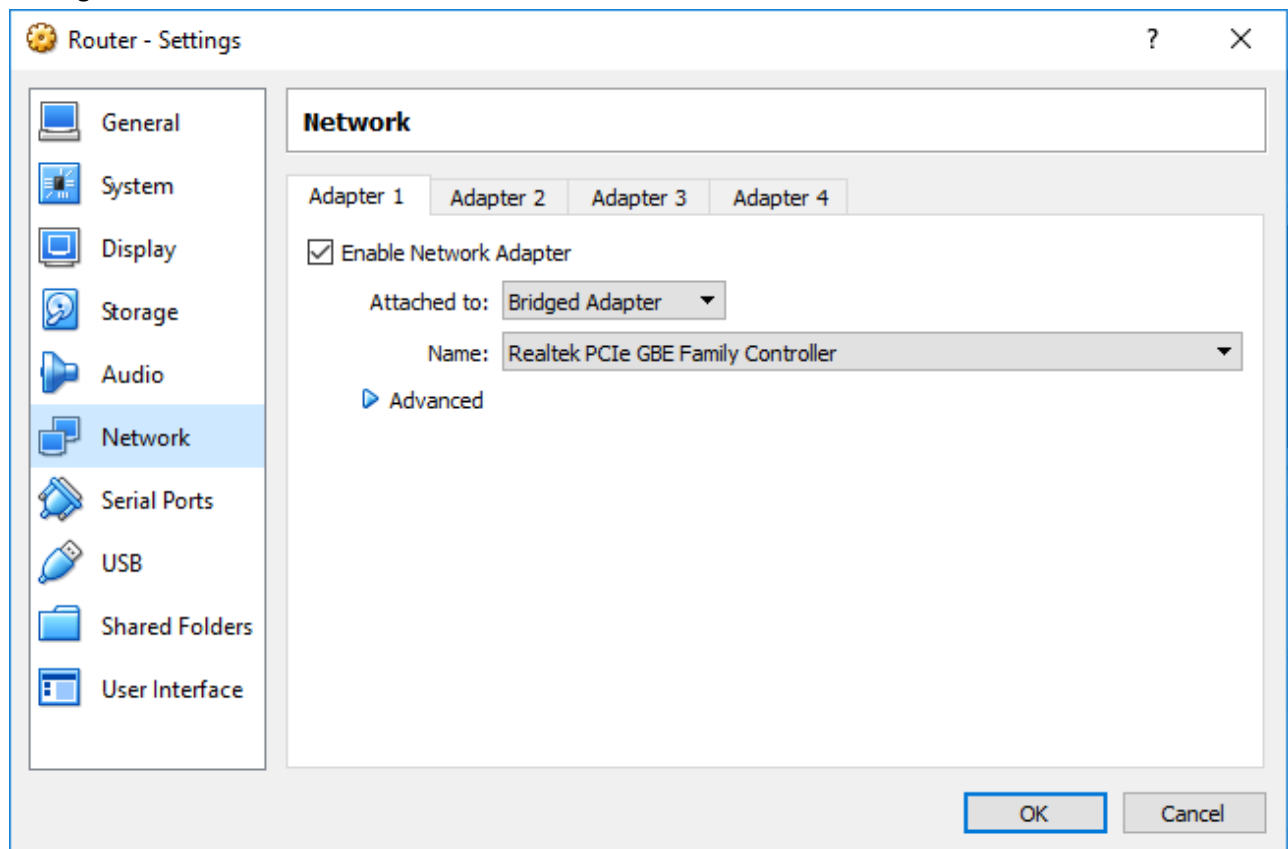
ep0s3 is the outgoing interface, **ep0s8** is the **admins** interface and the **enp0s9** is for the **client**:

```
[root@localhost ~]# ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet6 fe80::a00:27ff:fe37:bccd prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:37:bc:cd txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 13 bytes 1518 (1.4 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet6 fe80::a00:27ff:fee3:8daa prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:e3:8d:aa txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 14 bytes 1860 (1.8 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s9: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
```

Here are the Router, Admin and Client network setting on the Oracle virtualbox settings:



Router - Settings

?

✕

General

System

Display

Storage

Audio

Network

Serial Ports

USB

Shared Folders

User Interface

Network

Adapter 1 Adapter 2 Adapter 3 Adapter 4

☒ Enable Network Adapter

Attached to: Internal Network ▾

Name: intnet2 ▾

▶ Advanced

OK Cancel

-ADMIN- - Settings

?

✕

General

System

Display

Storage

Audio

Network

Serial Ports

USB

Shared Folders

User Interface

Network

Adapter 1 Adapter 2 Adapter 3 Adapter 4

☒ Enable Network Adapter

Attached to: Internal Network ▾

Name: intnet ▾

▶ Advanced

OK Cancel

- General
- System
- Display
- Storage
- Audio
- Network**
- Serial Ports
- USB
- Shared Folders
- User Interface

Network

Adapter 1 Adapter 2 Adapter 3 Adapter 4

☒ Enable Network Adapter

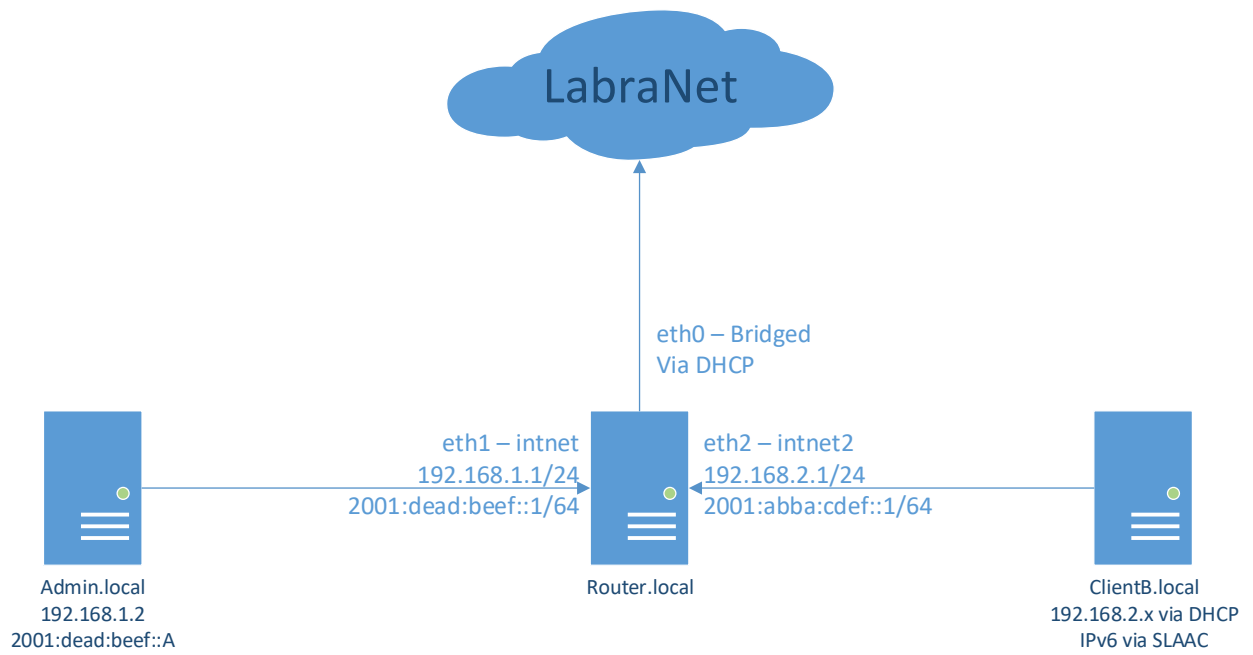
Attached to: Internal Network ▼

Name: intnet2 ▼

▶ Advanced

OK

Cancel



Interface names may vary in CentOS7
Router is configured as infrastructure server in Lab1