

How to build a network infrastructure using VMs (Virtual Machines)?

Type **man vde_switch**

vde_switch is used to build a network infrastructure. (VDE: Virtual Distributed Ethernet)

http://wiki.virtualsquare.org/wiki/index.php/VDE_Basic_Networking

<http://wiki.v2.cs.unibo.it/wiki/index.php?title=VDE>

Task A: (Creating a network using vde_switch)

In order to create a network and connect the VMs to each other do the following:

1. Start a terminal and run **vde_switch** to enable connectivity between the virtual machines.
2. Type **man qemu-system** and read carefully the definition of the following attributes:

- -m
- -cdrom
- -k
- -name
- -net user (then read the following options of this attribute)
 - net=addr[/mask]
 - host=addr
 - hostname=name
 - dhcpstart=addr

3. To deploy a router that provides internet connectivity to the virtual network do the following:

- a. Type **slirpvde -n 192.168.20.0/24 -D**

- The output of this command should be as follows:

Starting slirpvde: virtual_host = 192.168.20.2/24

DNS =192.168.20.3

dhcp_start =192.168.20.15

vde switch =*DEFAULT*

Note here that 192.168.20.2 is the ip address of the physical/real machine hosting the virtual network, 192.168.20.3 is the ip address of the virtual DNS server and all the VMs belonging to this network will be assigned ip addresses starting from 192.168.20.15

What is the meaning of (/24) in **192.168.20.0/24**? Is this ip address visible to the machines outside this virtual network? Does this make it more or less vulnerable to security attacks? Explain your answer.

b. Type **man slirpvde** and read carefully the definition of the attributes:

- -H
- -n
- -D

4. Open a new terminal with 2 tabs (use **ctrl+ shift + t** to open an additional tab in a terminal), and run the following commands (each command in one tab) to start the 2 VMs.

Tab	Command	Function
1	qemu-system-x86_64 -cdrom /var/tmp/finnix-107.iso -m 512 -net nic,macaddr=52:54:00:00:AA:02 -net vde -name VM1 Find the IP address of VM1? Is it private or public address? Test its connectivity with the host physical machine Type ping 192.168.20.2	Client
2	qemu-system-x86_64 -cdrom /var/tmp/finnix-107.iso -m 512 -net nic,macaddr=52:54:00:00:AA:04 -net vde -name VM2 Find the IP address of VM2? Is it private or public address? Test its connectivity with the host physical machine Type ping 192.168.20.2 Test its connectivity with VM1	Server