



# **T5 - Networks and Systems Admin.**

T-NSA-501

## **You shall not pass**

A Hobbit's tall



## TASK 00: PRELIMINARY

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For this project your manager ask you to download the following ISO:

- OpenBSD 6.8  
<https://www.openbsd.org/>
- FreeBSD 12  
<https://www.freebsd.org/fr/where.html>

He also let you some specifications:

- VM 1 is the gateway based on openBSD
  - 4 network card
  - 1 Bridge
  - 3 private network
- VM 2 is the web server based on Freebsd 12
  - 1 network card
- VM 3 is the employee-client machine
  - 1 network card
- VM 4 is the admin-client machine
  - 1 network card



A good initiative would be to schematize the expected infrastructure

## VM 1 - DHCP

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The gateway server must be able to provide IP addresses on private network.

The IP address of internal cards must be static.

Create 3 lan with the following configuration:

- lan-1 : administration
  - network : 192.168.42.0
  - broadcast : 192.168.42.63
  - range DHCP : 192.168.42.40 - 192.168.42.60
- lan-2 : server
  - network : 192.168.42.64
  - range DHCP : 192.168.42.70 - 192.168.42.110



- broadcast : 192.168.42.127
- lan-3 : employee
  - network : 192.168.42.128
  - range DHCP : 192.168.42.140 - 192.168.42.180
  - broadcast : 192.168.42.191



your mission is to calculate the netmask for each subnet

## VM 2 - SERVER WEB

On this machine install and setup a nginx web server  
Install also php7.4 and required modules for this application.  
You must deploy the page provided.

The server must always get the same IP address (192.168.42.70) and the configuration must be in DHCP mode.

Install mysql80-server using the port system and install the database `nsa501` provided.

Create a user for the database with the following features:

- user: backend
- rights: All rights on `nsa501` table
- password: Bit8Q6a6G



mac address

## VMS CLIENT

Both client machines can be installed with the system of your choice and with a graphical interface.  
The network configuration is automatically recovered by the DHCP

## GATEWAY

All the sub-networks must be able to communicate with each other through the gateway



Paquet filter



## NETWORK SECURITY

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- lan `administration` can reach all server into the network `server` on all ports.
- lan `employee` can reach the server only on http and https protocol. for example : an employee must not be able to access on the ssh port.
- lan `employee`, `administration` and `server` can go out on the internet , ping devices on another subnet, retrieve DHCP and DNS information from the gateway