



# S2.03

## INSTALLATION DE SERVICES RÉSEAUX

# RAPPORT FINAL

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## **1. PLAN D'ADRESSAGE RETENU**

### **1.1 Adressage**

Notre adresse publique de classe C est 220.18.4.0 /24 , le masque de réseau est 255.255.255.0.

Nous avons besoin de trois sous-réseaux spécifiques à savoir :

- 1 sous-réseau "serveur" avec un serveur
- 1 sous-réseaux "entrepôt" avec 4 machines
- 1 sous-réseaux "administratif" avec 6 machines

Nous devons utiliser 2 bits afin de créer 4 sous réseaux,  $2^2 = 4$  ,  $4 > 3$  sous réseaux.

11111111.11111111.11111111.11000000 => notre masque de sous réseau : 255.255.255.192

en notation CIDR /26

Il nous reste donc 6 bits soit 2 puissance 6 qui nous donne 64 - 2 ( adresse du réseau et adresse du broadcast ). Nous pouvons donc adresser 62 machines par sous-réseau.

#### **Détail adressage :**

1er sous-réseau correspond au sous-réseau "serveur" :

- adresse réseau : **220.18.4.0 / 26**
- adresse broadcast : **220.18.4.63 / 26**
- plage d'adresses machine : de **220.18.4.1** à **220.18.4.62**

2ème sous-réseau correspond au sous-réseau "administratif" :

- adresse réseau : **220.18.4.64 / 26**
- adresse broadcast : **220.18.4.127 / 26**
- plage d'adresses machine : de **220.18.4.65** à **220.18.4.126**

3ème sous-réseau correspond au sous-réseau "entrepôt" :

- adresse réseau : **220.18.4.128 / 26**
- adresse broadcast : **220.18.4.191 / 26**
- plage d'adresses machine : de **220.18.4.129** à **220.18.4.190**

4ème sous-réseau correspond au sous-réseau NON UTILISÉ :

- adresse réseau : 220.18.4.192
- adresse broadcast : 220.18.4.255
- plage d'adresses machine : de 220.18.4.193 à 220.18.4.254

#### **Adressage routeurs:**

routeur1 : eth0 220.18.4.129 / 26 1ère adresse sous-réseau "entrepôt"

eth1 220.18.4.1 /26 1ère adresse sous-réseau "serveur"

routeur2 : eth0 220.18.4.2 /26 2ème adresse sous-réseau "serveur"

eth1 220.18.4.65 /26 1ère adresse sous-réseau "administratif"

routeur3 : eth0 192.168.0.1/ 24 vers gateway

eth1 220.18.4.66 /26 2ème adresse sous-réseau "administratif"

#### **Adressage serveurs:**

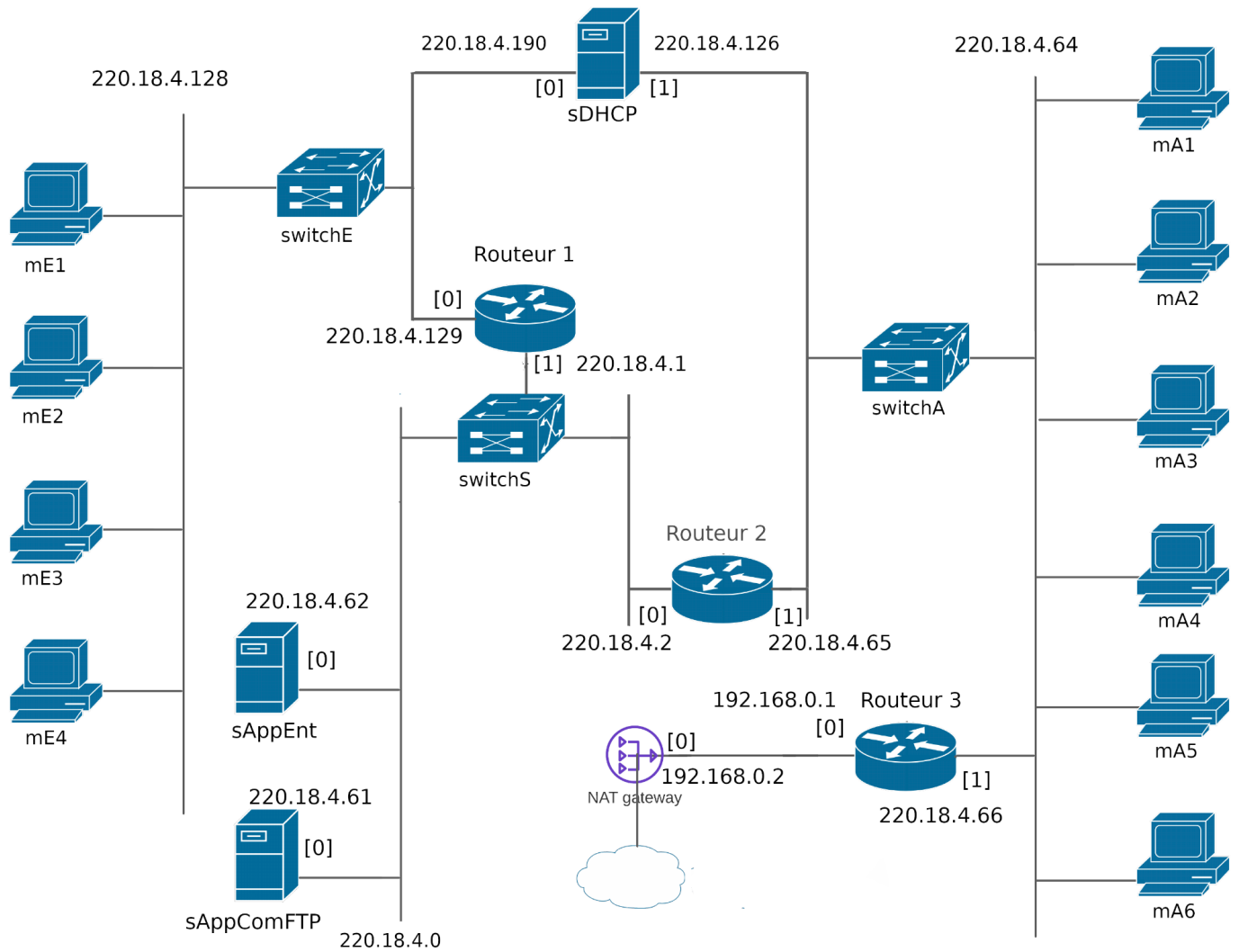
serveur DHCP: eth0 220.18.4.190 /26 dernière adresse sous-réseau "entrepôt"

eth1 220.18.4.126 /26 dernière adresse sous-réseau "administratif"

serveur application de gestion commerciale et FTP: eth0 220.18.4.61 /26

serveur application d'entreposage : eth0 220.18.4.62 /26

## 1.2 Schéma du réseau



## **2. PARAMÉTRAGE**

### **2.1 Serveur DHCP**

Nous avons paramétrer le serveur DHCP à l'aide du fichier de configuration dhcpd.conf

### **2.2 routeur 1**

Nous avons paramétrer le routeur 1 à l'aide du fichier de configuration (Cf figure)

### **2.3 routeur 2**

Nous avons paramétrer le routeur 2 à l'aide du fichier de configuration (Cf figure)

### **2.4 routeur 3**

Nous avons paramétrer le routeur 3 à l'aide du fichier de configuration (Cf figure)

### **2.5 Serveur administrateur (sAppFTP)**

```
cd /  
nano etc/rc.local  
ifconfig eth0 220.18.4.61 /26
```

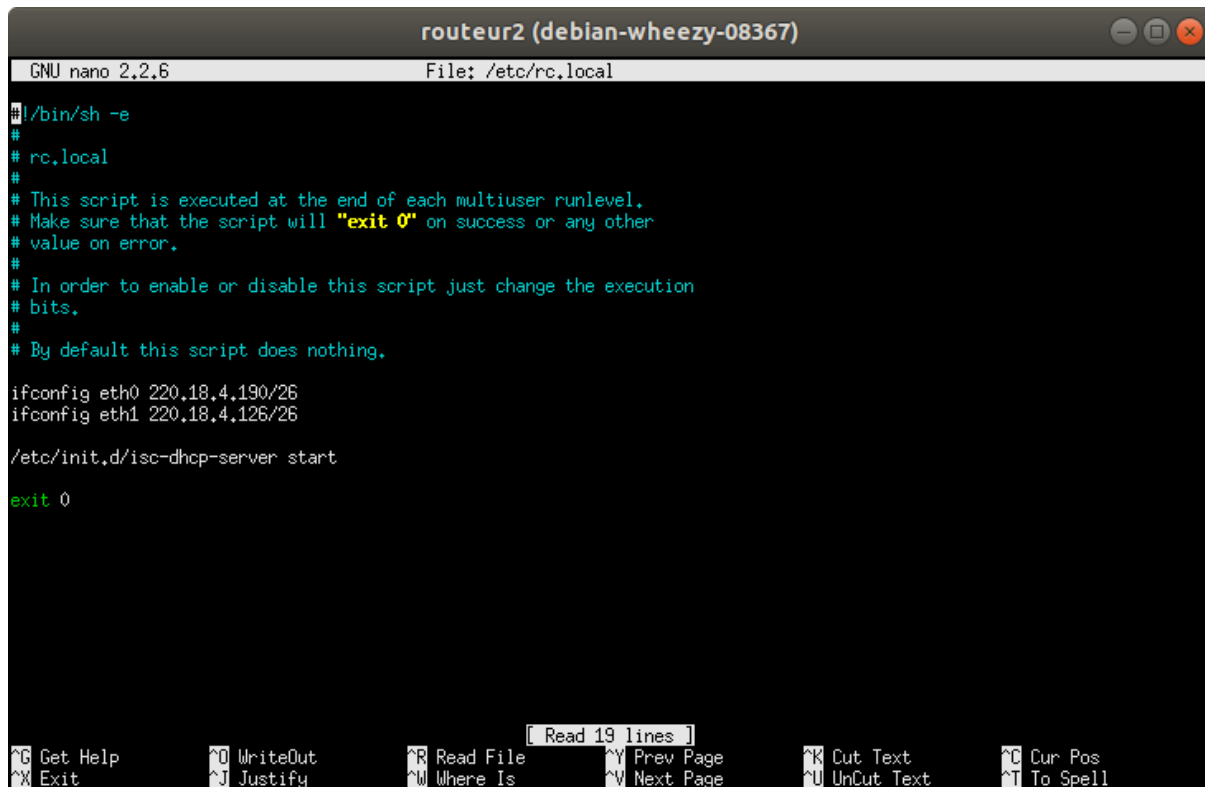
### **2.6 Configuration serveur entrepôt (sAppEnt) :**

```
cd /  
nano etc/rc.local  
ifconfig eth0 220.18.4.62 /26
```

### 3. CAPTURES D'ÉCRANS

(requête DHCP, routage ok, accès internet ou non des machine, accès serveur gestion simulé)

#### 3.1 *Serveur DHCP*



```
routeur2 (debian-wheezy-08367)
GNU nano 2.2.6 File: /etc/rc.local

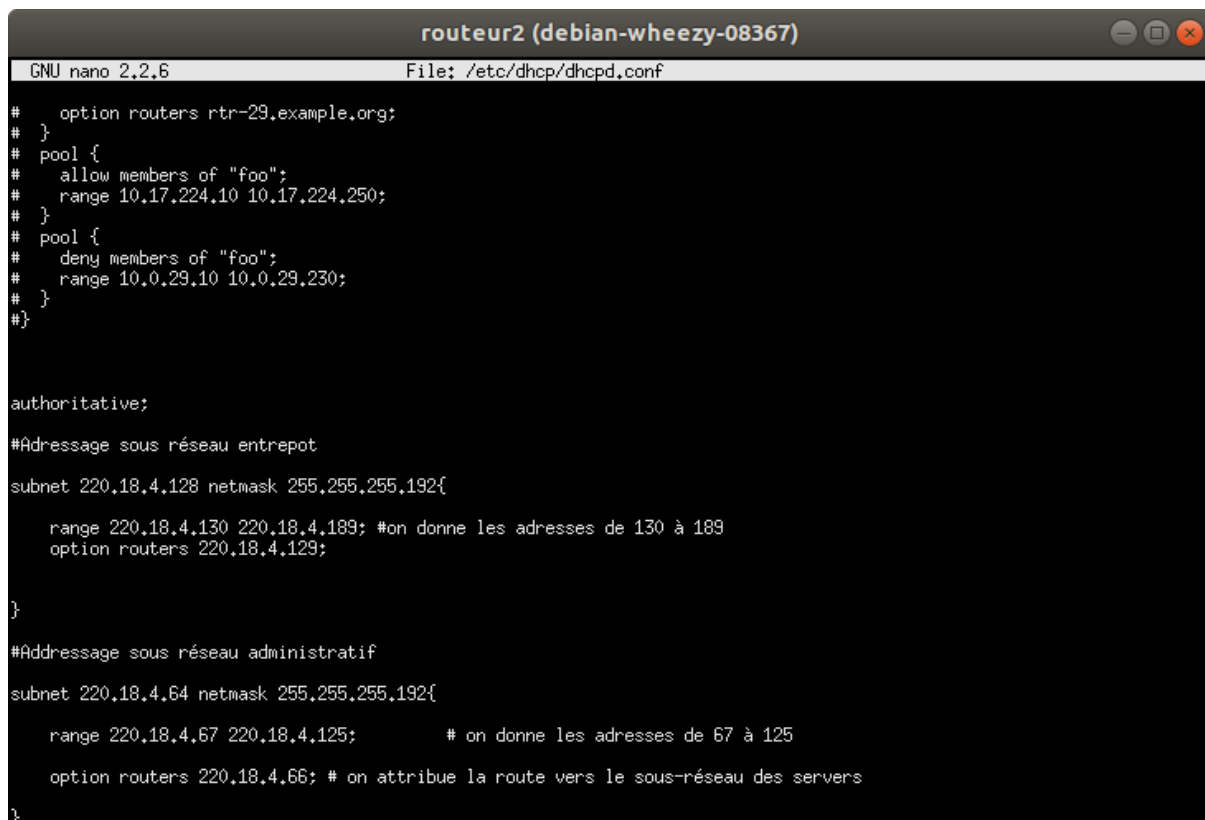
#!/bin/sh -e
#
# rc.local
#
# This script is executed at the end of each multiuser runlevel.
# Make sure that the script will "exit 0" on success or any other
# value on error.
#
# In order to enable or disable this script just change the execution
# bits.
#
# By default this script does nothing.

ifconfig eth0 220.18.4.190/26
ifconfig eth1 220.18.4.126/26

/etc/init.d/isc-dhcp-server start

exit 0
```

Configuration du serveur DHCP dans le fichier rc.local nous avons adressé les interfaces eth0 et eth1 de manière statique avec les dernières adresses disponibles de chacun des sous-réseaux. La commande **/etc/init.d/isc-dhcpd-server start** permet au lancement de la machine de démarrer le service DHCP depuis cette machine.



```
routeur2 (debian-wheezy-08367)
GNU nano 2.2.6 File: /etc/dhcp/dhcpd.conf

#
# option routers rtr-29.example.org;
#
# }
# pool {
#   allow members of "foo";
#   range 10.17.224.10 10.17.224.250;
# }
# pool {
#   deny members of "foo";
#   range 10.0.29.10 10.0.29.230;
# }
#}

authoritative;

#Adressage sous réseau entrepot
subnet 220.18.4.128 netmask 255.255.255.192{
    range 220.18.4.130 220.18.4.189; #on donne les adresses de 130 à 189
    option routers 220.18.4.129;
}

#Adressage sous réseau administratif
subnet 220.18.4.64 netmask 255.255.255.192{
    range 220.18.4.67 220.18.4.125; # on donne les adresses de 67 à 125
    option routers 220.18.4.66; # on attribue la route vers le sous-réseau des servers
}
```

Le fichier `dhcpd.conf` nous a permis de configurer la manière dont vont être adressées les machines qui en feront la demande.

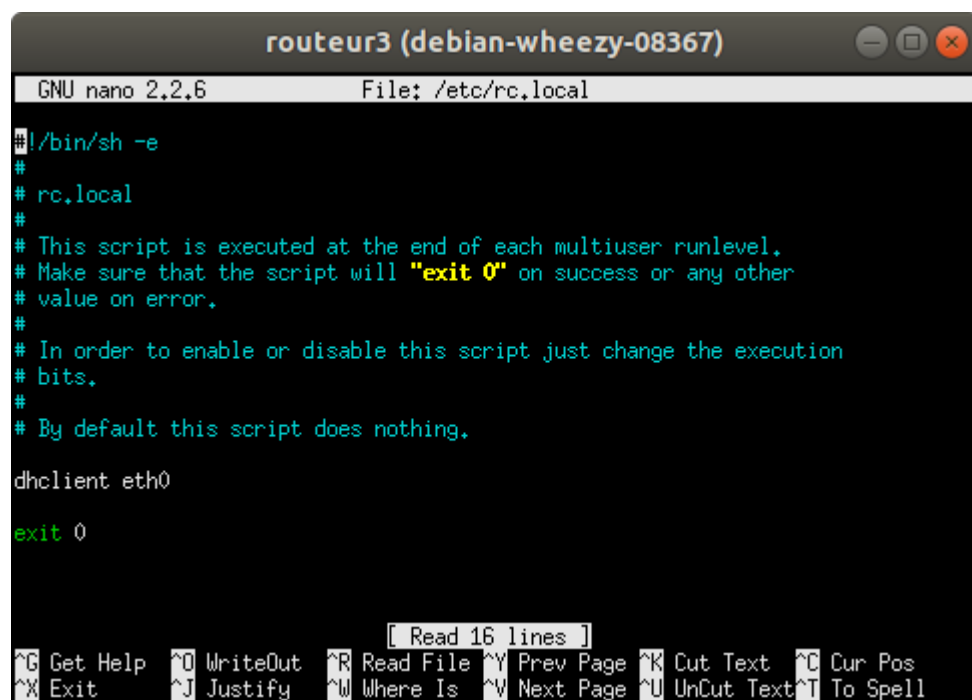
Pour le sous-réseau entrepôt la plage d'adresses disponible est de 220.18.4.130 à 220.18.4.189 (les adresses 220.18.4.129 et 220.18.4.190 étant déjà prises).

La route par défaut est définie vers le routeur 1 qui fait la passerelle entre le sous réseau-entrepôt et le sous réseau-server.

Pour le sous-réseau administratif la plage d'adresses disponible est de 220.18.4.67 à 220.18.4.125 (les adresses 220.18.4.65, 220.18.4.66 et 220.18.4.126 étant déjà prises).

La route par défaut est définie vers le routeur 3 qui fait la passerelle entre le sous réseau-administratif et la Gateway.

### 3.2 Machines administrative (mA3)



```
routeur3 (debian-wheezy-08367)
GNU nano 2.2.6 File: /etc/rc.local
#!/bin/sh -e
#
# rc.local
#
# This script is executed at the end of each multiuser runlevel.
# Make sure that the script will "exit 0" on success or any other
# value on error.
#
# In order to enable or disable this script just change the execution
# bits.
#
# By default this script does nothing.

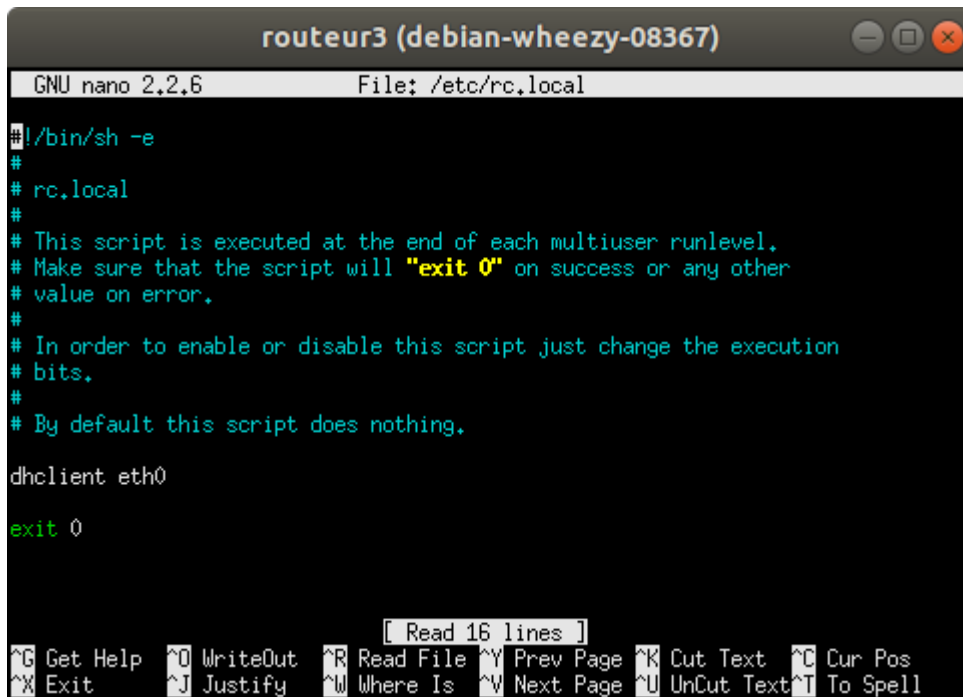
dhclient eth0

exit 0

[ Read 16 lines ]
^G Get Help  ^O WriteOut  ^R Read File ^Y Prev Page ^K Cut Text  ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell
```

Le fichier `rc.local` des machines administratives a été configuré comme ci-dessus avec seulement la commande **dhclient eth0**. Cette commande envoie une requête DHCP au serveur DHCP qui lui renverra son adressage pour son interface `eth0` ainsi que la route par défaut définie dans le `dhcpd.conf`.

### 3.3 Machines d'entreposage(mE4)



```
routeur3 (debian-wheezy-08367)
GNU nano 2.2.6      File: /etc/rc.local
#!/bin/sh -e
#
# rc.local
#
# This script is executed at the end of each multiuser runlevel.
# Make sure that the script will "exit 0" on success or any other
# value on error.
#
# In order to enable or disable this script just change the execution
# bits.
#
# By default this script does nothing.

dhclient eth0

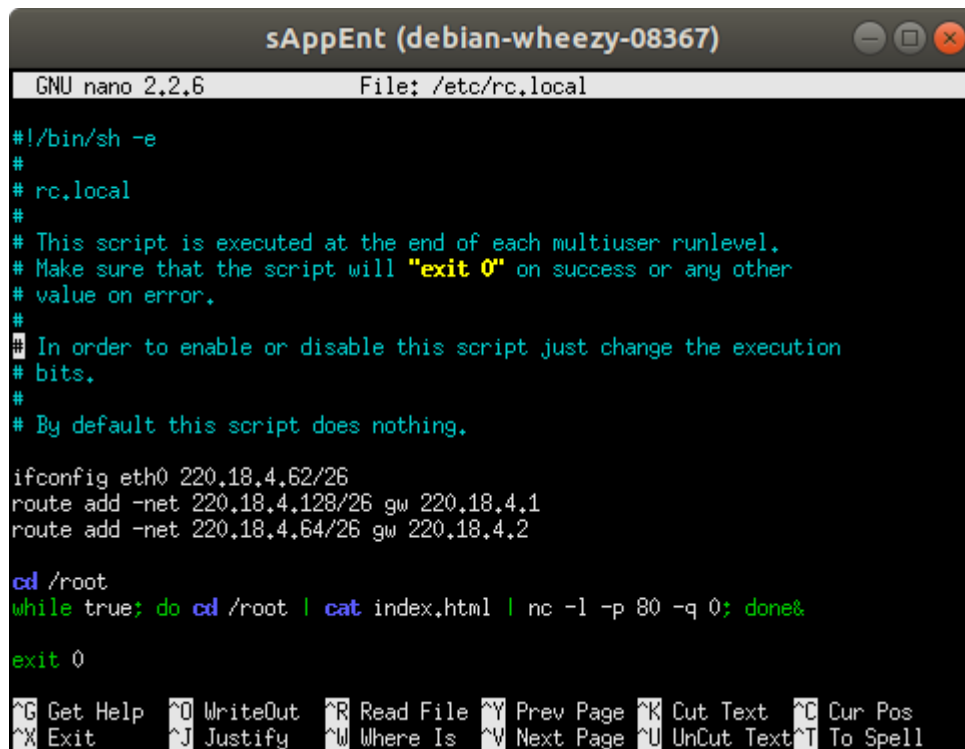
exit 0

[ Read 16 lines ]
^G Get Help  ^O WriteOut  ^R Read File ^Y Prev Page ^K Cut Text  ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is  ^V Next Page ^U UnCut Text ^T To Spell
```

Le fichier rc.local des machines d'entreposage a été configuré comme ci-dessus avec seulement la commande **dhclient eth0**. Cette commande envoie une requête DHCP au serveur DHCP qui lui renverra son adressage pour son interface eth0 ainsi que la route par défaut définie dans le **dhcpd.conf**.



### 3.4 Serveur d'application d'entreposage



```
sAppEnt (debian-wheezy-08367)
GNU nano 2.2.6 File: /etc/rc.local

#!/bin/sh -e
#
# rc.local
#
# This script is executed at the end of each multiuser runlevel.
# Make sure that the script will "exit 0" on success or any other
# value on error.
#
# In order to enable or disable this script just change the execution
# bits.
#
# By default this script does nothing.

ifconfig eth0 220.18.4.62/26
route add -net 220.18.4.128/26 gw 220.18.4.1
route add -net 220.18.4.64/26 gw 220.18.4.2

cd /root
while true; do cd /root | cat index.html | nc -l -p 80 -q 0; done&

exit 0

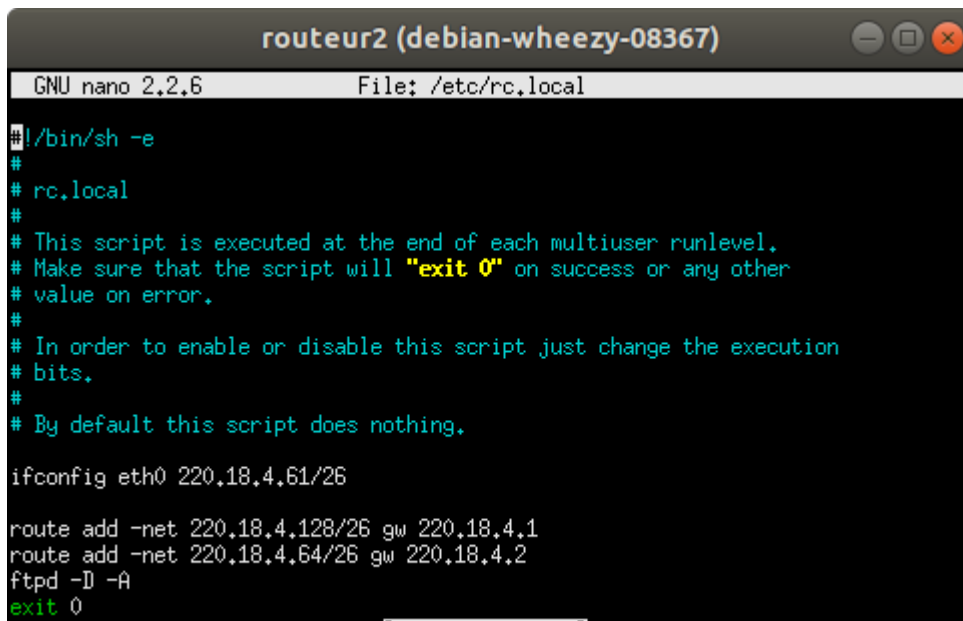
^G Get Help  ^O WriteOut  ^R Read File ^Y Prev Page ^K Cut Text  ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell
```

Pour configurer le serveur d'application d'entreposage nous avons d'abord configuré son interface eth0 de manière statique en prenant la dernière adresse encore disponible soit 220.18.4.62.

Nous ajoutons également deux routes vers les sous réseaux administratif et entreposage, pour permettre au serveur de communiquer avec ces sous-réseaux.

Le serveur d'application doit permettre à n'importe quelle machine d'afficher une page web ("index.html") grâce à la commande netcat en mode écoute. Le problème de cette commande est qu'elle ne répond qu'à une demande. Ainsi nous avons créé une boucle infinie qui exécute la commande netcat en mode écoute sur le port 80 afin de permettre à toutes les machines de demander l'accès à la page web n'importe quand. Cette boucle est exécutée en fond, grâce à l'esperluette après le **done**, ainsi l'instruction ne bloque pas le terminal.

### 3.5 Serveur FTP



```
routeur2 (debian-wheezy-08367)
GNU nano 2.2.6 File: /etc/rc.local
#!/bin/sh -e
#
# rc.local
#
# This script is executed at the end of each multiuser runlevel.
# Make sure that the script will "exit 0" on success or any other
# value on error.
#
# In order to enable or disable this script just change the execution
# bits.
#
# By default this script does nothing.

ifconfig eth0 220.18.4.61/26

route add -net 220.18.4.128/26 gw 220.18.4.1
route add -net 220.18.4.64/26 gw 220.18.4.2
ftpd -D -A
exit 0
```

Pour configurer le serveur FTP nous avons d'abord configuré son interface eth0 de manière statique en prenant la dernière adresse encore disponible soit 220.18.4.62.

Nous ajoutons également deux routes vers les sous réseaux administratif et entreposage, pour permettre au serveur de communiquer avec ces sous-réseaux.

La commande **ftpd -D -A** permet de démarrer le service FTP.

Le -D permet d'exécuter le serveur en mode daemon, ainsi il fonctionne comme un service en continu, en attente de connexions de clients FTP. Il ne nécessite pas qu'un utilisateur soit connecté en permanence sur la machine hébergeant le serveur FTP.

Le -A permet d'exécuter le serveur en mode anonyme, ainsi les utilisateurs peuvent se connecter au serveur FTP sans fournir d'informations d'identification.

### 3.6 routeur 1

```
routeur1 configuration file
1 #!/bin/bash
2 # ---
3 # This script will be executed (sourced) as final step
4 # of the virtual machine bootstrap process.
5 # ---
6 # Several variables are set at this point.
7 # Examples: (some values depend on your settings)
8 # ---
9 # hostname='R1'
10 # mem='48M'
11 # virtualfs_kind='router'
12 # virtualfs_name='router-guignol-45228'
13 # mac_address_eth0='02:04:06:15:ad:0a'
14 # mtu_eth0='1500'
15 # PATH='/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin'
16 # ---
17 # Your effective user and group IDs are uid=0 (root), gid=0 (root),
18 # and the current working directory is '/', that is to say PWD='/'
19 # ---
20 ifconfig eth0 220.18.4.129/26
21 ifconfig eth1 220.18.4.1/26
```

Annuler Valider

Nous avons configuré les interfaces eth0 et 1 de manière statique, elles prennent chacune la première adresse disponible.

### 3.7 routeur 2

```
routeur2 configuration file
1 #!/bin/bash
2 # ---
3 # This script will be executed (sourced) as final step
4 # of the virtual machine bootstrap process.
5 # ---
6 # Several variables are set at this point.
7 # Examples: (some values depend on your settings)
8 # ---
9 # hostname='R1'
10 # mem='48M'
11 # virtualfs_kind='router'
12 # virtualfs_name='router-guignol-45228'
13 # mac_address_eth0='02:04:06:15:ad:0a'
14 # mtu_eth0='1500'
15 # PATH='/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin'
16 # ---
17 # Your effective user and group IDs are uid=0 (root), gid=0 (root),
18 # and the current working directory is '/', that is to say PWD='/'
19 # ---
20 ifconfig eth0 220.18.4.2/26
21 ifconfig eth1 220.18.4.65/26
```

Nous avons configuré les interfaces eth0 et 1 de manière statique, elles prennent chacune la première adresse disponible.

### 3.8 routeur 3

```

routeur2 (guignol-18474)
GNU nano 2.3.6 File: /etc/network/interfaces

# Configure Loopback
auto lo
iface lo inet loopback

# Montage automatique de l'interface
auto eth0
# Définition en tant qu'IP statique
iface eth0 inet static
    address 192.168.0.1
    netmask 255.255.255.0
    gateway 192.168.0.2

# Définition de l'interface eth1
auto eth1

iface eth1 inet static
    address 220.18.4.66
    netmask 255.255.255.192

```

```

routeur3 configuration file
1 #!/bin/bash
2 # ---
3 # This script will be executed (sourced) as final step
4 # of the virtual machine bootstrap process.
5 # ---
6 # Several variables are set at this point.
7 # Examples: (some values depend on your settings)
8 # ---
9 # hostname='R1'
10 # mem='48M'
11 # virtualfs_kind='router'
12 # virtualfs_name='router-guignol-45228'
13 # mac_address_eth0='02:04:06:15:ad:0a'
14 # mtu_eth0='1500'
15 # PATH='/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin'
16 # ---
17 # Your effective user and group IDs are uid=0 (root), gid=0 (root),
18 # and the current working directory is '/', that is to say PWD='/'
19 # ---
20 ifconfig eth0 192.168.0.1/24
21 ifconfig eth1 220.18.4.66/26
22
23 route add default gw 192.168.0.2 eth0
24 route add -net 220.18.4.0/26 gw 220.18.4.65 eth1|

```

Nous avons configuré les interfaces eth0 et 1 de manière statique, elles prennent chacune la première adresse disponible. Afin de permettre aux machines du sous-réseau administratif de communiquer avec internet nous avons ajouté une route par défaut vers la gateway sur l'interface eth0. Cependant les machines administratives n'ont qu'une route par défaut vers le routeur 3 elles ne peuvent donc pas communiquer avec le sous-réseau serveur. C'est pourquoi nous avons ajouté au routeur 3 une route vers le sous-réseau serveur afin que ce dernier redirige les tentatives de connexions aux serveurs vers le routeur 2 qui fait la passerelle entre le sous-réseau administratif et le sous-réseau serveur.

### 3.9 Tests du DHCP

#### 3.9.1 Depuis machines administratives (mA1)

Capturing from eth0 [Wireshark 1.8.2] (sur mA1)

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
65	204.492798000	220.18.4.67	192.168.0.2	ICMP	98	Echo (ping) request id=0x06c1, seq=3/
66	204.496268000	192.168.0.2	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06c1, seq=3/
67	205.493625000	220.18.4.67	192.168.0.2	ICMP	98	Echo (ping) request id=0x06c1, seq=4/
68	205.496411000	192.168.0.2	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06c1, seq=4/
69	207.490162000	BbnInter_94:fb:28	BbnInter_4a:78:87	ARP	42	Who has 220.18.4.67? Tell 220.18.4.66
70	207.490194000	BbnInter_4a:78:87	BbnInter_94:fb:28	ARP	42	220.18.4.67 is at 02:04:06:4a:78:87
71	223.012928000	BbnInter_e2:64:f6	Broadcast	AoE	32	Query Config Information Request
72	240.644103000	BbnInter_33:e6:ff	Broadcast	AoE	32	Query Config Information Request
73	245.295733000	BbnInter_94:fb:28	Broadcast	AoE	32	Query Config Information Request
74	257.837535000	BbnInter_4a:78:87	Broadcast	AoE	32	Query Config Information Request
75	283.162447000	BbnInter_e2:64:f6	Broadcast	AoE	32	Query Config Information Request
76	292.512675000	0.0.0.0	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0xa6010
77	292.586944000	220.18.4.126	220.18.4.67	DHCP	342	DHCP ACK - Transaction ID 0xa6010
78	300.801178000	BbnInter_33:e6:ff	Broadcast	AoE	32	Query Config Information Request
79	305.482185000	BbnInter_94:fb:28	Broadcast	AoE	32	Query Config Information Request
80	317.996825000	BbnInter_4a:78:87	Broadcast	AoE	32	Query Config Information Request

Frame 19: 32 bytes on wire (256 bits), 32 bytes captured (256 bits) on interface 0  
 Ethernet II, Src: BbnInter\_4a:78:87 (02:04:06:4a:78:87), Dst: Broadcast (ff:ff:ff:ff:ff:ff)  
 ATAoverEthernet

```

0000  ff ff ff ff ff ff 02 04 06 4a 78 87 88 a2 10 00  .....Jx.....
0010  ff ff ff 01 00 00 00 00 00 00 00 00 00 00 00 00  .....
  
```

eth0: <live capture in progress> Packets: 80 Displayed: 80 Marked: 0 Profile: Default

#### 3.9.2 Depuis machines entrepôt (mE4)

Capturing from eth0 [Wireshark 1.8.2] (sur mE4)

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
315	953.275740000	220.18.4.132	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x5c9caa71
316	962.498514000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134
317	963.257063000	BbnInter_f8:44:cf	Broadcast	AoE	32	Query Config Information Request
318	963.499558000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134
319	964.502521000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134
320	965.308590000	0.0.0.0	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x13664029
321	965.374346000	220.18.4.190	220.18.4.134	DHCP	342	DHCP ACK - Transaction ID 0x13664029
322	967.753435000	220.18.4.132	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x5c9caa71
323	979.022209000	BbnInter_77:d3:04	Broadcast	AoE	32	Query Config Information Request
324	981.060101000	220.18.4.132	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x5c9caa71
325	983.682405000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134
326	984.696250000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134
327	985.703638000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134
328	988.741121000	220.18.4.132	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x5c9caa71
329	993.006678000	BbnInter_c0:f4:0e	Broadcast	AoE	32	Query Config Information Request
330	994.528557000	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transaction ID 0x87775129
331	994.530029000	0.0.0.0	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x87775129

Frame 1: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface 0

```

3000  ff ff ff ff ff ff 02 04 06 f8 44 cf 08 06 00 01  .....D.....
3010  08 00 06 04 00 01 02 04 06 f8 44 cf dc 12 04 86  .....D.....
3020  00 00 00 00 00 00 dc 12 04 be  .....
  
```

eth0: <live capture in progres... Packets: 342 Displayed: 342 Marked: 0 Profile: Default

### 3.10 Tests du service FTP

#### 3.10.1 Depuis machines administratives (mA1)

Capturing from eth0 [Wireshark 1.8.2] (sur mA1)

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
100	377.400602000	220.18.4.67	220.18.4.61	TCP	66	53068 > ftp [ACK] Seq=24 Ack=192 Win=1
101	378.155502000	BbnInter_4a:78:87	Broadcast	AoE	32	Query Config Information Request
102	382.388651000	BbnInter_4a:78:87	BbnInter_33:e6:ff	ARP	42	Who has 220.18.4.65? Tell 220.18.4.67
103	382.390024000	BbnInter_33:e6:ff	BbnInter_4a:78:87	ARP	42	220.18.4.65 is at 02:04:06:33:e6:ff
104	388.469788000	220.18.4.67	220.18.4.126	DHCP	342	DHCP Request - Transaction ID 0x7d9d3
105	388.557158000	BbnInter_e2:64:f6	Broadcast	ARP	42	Who has 220.18.4.67? Tell 220.18.4.69
106	388.557197000	BbnInter_4a:78:87	BbnInter_e2:64:f6	ARP	42	220.18.4.67 is at 02:04:06:4a:78:87
107	388.558263000	220.18.4.69	220.18.4.67	DHCP	342	DHCP ACK - Transaction ID 0x7d9d3
108	391.286844000	220.18.4.67	220.18.4.61	FTP	74	Request: TYPE I
109	391.289109000	220.18.4.61	220.18.4.67	FTP	86	Response: 200 Type set to I.
110	391.289282000	220.18.4.67	220.18.4.61	TCP	66	53068 > ftp [ACK] Seq=32 Ack=212 Win=1
111	391.289580000	220.18.4.67	220.18.4.61	FTP	92	Request: PORT 220,18,4,67,179,168
112	391.291653000	220.18.4.61	220.18.4.67	FTP	96	Response: 200 PORT command successful.
113	391.292174000	220.18.4.67	220.18.4.61	FTP	81	Request: RETR toto.txt
114	391.295806000	220.18.4.61	220.18.4.67	TCP	74	37212 > 45992 [SYN] Seq=0 Win=14600 Le
115	391.295868000	220.18.4.67	220.18.4.61	TCP	74	45992 > 37212 [SYN, ACK] Seq=0 Ack=1 W
116	391.297672000	220.18.4.61	220.18.4.67	TCP	66	37212 > 45992 [ACK] Seq=1 Ack=1 Win=14
117	391.297936000	220.18.4.61	220.18.4.67	FTP	133	Response: 150 Opening BINARY mode data
118	391.298083000	220.18.4.61	220.18.4.67	TCP	66	37212 > 45992 [FIN, ACK] Seq=1 Ack=1 W
119	391.299104000	220.18.4.67	220.18.4.61	TCP	66	45992 > 37212 [FIN, ACK] Seq=1 Ack=2 W
120	391.301083000	220.18.4.61	220.18.4.67	TCP	66	37212 > 45992 [ACK] Seq=2 Ack=2 Win=14
121	391.320613000	220.18.4.67	220.18.4.61	TCP	66	53068 > ftp [ACK] Seq=73 Ack=309 Win=1
122	391.322984000	220.18.4.61	220.18.4.67	FTP	90	Response: 226 Transfer complete.
123	391.323739000	220.18.4.67	220.18.4.61	TCP	66	53068 > ftp [ACK] Seq=73 Ack=333 Win=1
124	393.477861000	BbnInter_4a:78:87	BbnInter_e2:64:f6	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6

Frame 126: 42 bytes on wire (336 bits). 42 bytes captured (336 bits) on interface 0

```

0000  02 04 06 e2 64 f6 02 04 06 4a 78 87 08 06 00 01  ....d...Jx.....
0010  08 00 06 04 00 01 02 04 06 4a 78 87 dc 12 04 43  ....Jx.....C
0020  00 00 00 00 00 00 dc 12 04 7e  ....~

```

eth0: <live capture in progres... Packets: 156 Displayed: 156 Marked: 0 Profile: Default

#### 3.10.2 Depuis machines entrepôts (mE4)

Capturing from eth0 [Wireshark 1.8.2] (sur mE4)

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
386	1173.485076000	BbnInter_c0:f4:0e	Broadcast	AoE	32	Query Config Information Request
387	1174.917633000	BbnInter_77:d3:04	BbnInter_f8:44:cf	ARP	42	Who has 220.18.4.134? Tell 220.18.4.129
388	1174.917661000	BbnInter_f8:44:cf	BbnInter_77:d3:04	ARP	42	220.18.4.134 is at 02:04:06:f8:44:cf
389	1183.063874000	220.18.4.134	220.18.4.61	FTP	76	Request: USER ftp
390	1183.068494000	220.18.4.61	220.18.4.134	TCP	66	ftp > 50052 [ACK] Seq=54 Ack=11 Win=14480 Len=0 TSval=554
391	1183.075690000	220.18.4.61	220.18.4.134	FTP	115	Response: 331 Guest login ok, type your name as password.
392	1183.075873000	220.18.4.134	220.18.4.61	TCP	66	50052 > ftp [ACK] Seq=11 Ack=103 Win=14600 Len=0 TSval=45
393	1185.032411000	220.18.4.134	220.18.4.61	FTP	73	Request: PASS
394	1185.040566000	220.18.4.61	220.18.4.134	FTP	114	Response: 230 Guest login ok, access restrictions apply.
395	1185.040782000	220.18.4.134	220.18.4.61	TCP	66	50052 > ftp [ACK] Seq=18 Ack=151 Win=14600 Len=0 TSval=45
396	1185.041436000	220.18.4.134	220.18.4.61	FTP	72	Request: SYST
397	1185.044082000	220.18.4.61	220.18.4.134	FTP	107	Response: 215 UNIX Type: L8 Version: Linux 3.2.64
398	1185.066515000	220.18.4.134	220.18.4.61	TCP	66	50052 > ftp [ACK] Seq=24 Ack=192 Win=14600 Len=0 TSval=45
399	1203.913653000	BbnInter_f8:44:cf	Broadcast	AoE	32	Query Config Information Request
400	1205.349041000	220.18.4.134	220.18.4.61	FTP	92	Request: PORT 220,18,4,134,214,12
401	1205.351423000	220.18.4.61	220.18.4.134	FTP	96	Response: 200 PORT command successful.
402	1205.351551000	220.18.4.134	220.18.4.61	TCP	66	50052 > ftp [ACK] Seq=50 Ack=222 Win=14600 Len=0 TSval=45
403	1205.351624000	220.18.4.134	220.18.4.61	FTP	72	Request: LIST
404	1205.353687000	220.18.4.61	220.18.4.134	TCP	74	49434 > 54796 [SYN] Seq=0 Win=14600 Len=0 MSS=1460 SACK PI
405	1205.353710000	220.18.4.134	220.18.4.61	TCP	74	54796 > 49434 [SYN, ACK] Seq=0 Ack=1 Win=14480 Len=0 MSS=
406	1205.354331000	220.18.4.61	220.18.4.134	TCP	66	49434 > 54796 [ACK] Seq=1 Ack=1 Win=14600 Len=0 TSval=556
407	1205.354476000	220.18.4.61	220.18.4.134	FTP	121	Response: 150 Opening ASCII mode data connection for '/bin
408	1205.362214000	220.18.4.61	220.18.4.134	TCP	408	49434 > 54796 [PSH, ACK] Seq=1 Ack=1 Win=14600 Len=342 TSv
409	1205.362216000	220.18.4.61	220.18.4.134	TCP	66	49434 > 54796 [FIN, ACK] Seq=343 Ack=1 Win=14600 Len=0 TSv
410	1205.362377000	220.18.4.134	220.18.4.61	TCP	66	54796 > 49434 [ACK] Seq=1 Ack=343 Win=14480 Len=0 TSval=4
411	1205.362624000	220.18.4.134	220.18.4.61	TCP	66	54796 > 49434 [FIN, ACK] Seq=1 Ack=344 Win=14480 Len=0 TSv
412	1205.363673000	220.18.4.61	220.18.4.134	TCP	66	49434 > 54796 [ACK] Seq=344 Ack=2 Win=14600 Len=0 TSval=5
413	1205.394101000	220.18.4.134	220.18.4.61	TCP	66	50052 > ftp [ACK] Seq=56 Ack=277 Win=14600 Len=0 TSval=45
414	1205.398353000	220.18.4.61	220.18.4.134	FTP	90	Response: 226 Transfer complete.
415	1205.398721000	220.18.4.134	220.18.4.61	TCP	66	50052 > ftp [ACK] Seq=56 Ack=301 Win=14600 Len=0 TSval=45
416	1207.474427000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134



### 3.11 Connexion vers IPARLA depuis machine administrative

Capturing from eth0 [Wireshark 1.8.2] (sur mA1)

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
2722	7000.735768000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6
2723	7001.733888000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6
2724	7002.738882000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6
2725	7016.102308000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6
2726	7017.102671000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6
2727	7018.108270000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6
2728	7021.092957000	BbnInter_e2:64:f6	Broadcast	AoE	32	Query Config Information Request
2729	7022.831186000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.66? Tell 220.18.4.67
2730	7022.832969000	BbnInter_94:fb:28	BbnInter_4a:78:87	ARP	42	220.18.4.66 is at 02:04:06:94:fb:28
2731	7022.832989000	220.18.4.67	10.3.224.215	TCP	74	42256 > http [SYN] Seq=0 Win=14600 Len
2732	7022.837129000	10.3.224.215	220.18.4.67	TCP	58	http > 42256 [SYN, ACK] Seq=0 Ack=1 Wi
2733	7022.837182000	220.18.4.67	10.3.224.215	TCP	54	42256 > http [ACK] Seq=1 Ack=1 Win=146
2734	7022.849368000	220.18.4.67	10.3.224.215	HTTP	290	GET / HTTP/1.0
2735	7022.851825000	10.3.224.215	220.18.4.67	TCP	54	http > 42256 [ACK] Seq=1 Ack=237 Win=8
2736	7022.853615000	10.3.224.215	220.18.4.67	HTTP	356	HTTP/1.1 200 OK (text/html)
2737	7022.853655000	220.18.4.67	10.3.224.215	TCP	54	42256 > http [ACK] Seq=237 Ack=303 Win
2738	7022.853619000	10.3.224.215	220.18.4.67	TCP	54	http > 42256 [FIN, ACK] Seq=303 Ack=23
2739	7022.894952000	220.18.4.67	10.3.224.215	TCP	54	42256 > http [ACK] Seq=237 Ack=304 Win
2740	7022.898781000	220.18.4.67	10.3.224.215	TCP	54	42256 > http [FIN, ACK] Seq=237 Ack=30
2741	7022.901038000	10.3.224.215	220.18.4.67	TCP	54	http > 42256 [ACK] Seq=304 Ack=238 Win
2742	7023.280839000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6
2743	7024.280503000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6
2744	7025.281906000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6
2745	7036.114524000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6
2746	7037.145651000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6

Frame 126: 42 bytes on wire (336 bits). 42 bytes captured (336 bits) on interface 0

```

0000 02 04 06 e2 64 f6 02 04 06 4a 78 87 08 06 00 01  ....d...Jx....
0010 08 00 06 04 00 01 02 04 06 4a 78 87 dc 12 04 43  ....Jx.....C
0020 00 00 00 00 00 00 dc 12 04 7e  .........

```

eth0: <live capture in progress> Packets: 2746 Displayed: 2746 Marked: 0 Profile: Default

### 3.12 Test des différents pings

#### 3.12.1 Depuis machines administratives

##### 3.12.1.1 Vers la GATEWAY

Capturing from eth0 [Wireshark 1.8.2] (sur mA1)

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
55	168.075065000	220.18.4.69	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x238fa
56	180.479076000	BbnInter_33:e6:ff	Broadcast	AoE	32	Query Config Information Request
57	185.142302000	BbnInter_94:fb:28	Broadcast	AoE	32	Query Config Information Request
58	186.094980000	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transaction ID 0x75844
59	186.097284000	0.0.0.0	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x75844
60	197.678010000	BbnInter_4a:78:87	Broadcast	AoE	32	Query Config Information Request
61	202.474899000	220.18.4.67	192.168.0.2	ICMP	98	Echo (ping) request id=0x06c1, seq=1/
62	202.477242000	192.168.0.2	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06c1, seq=1/
63	203.484820000	220.18.4.67	192.168.0.2	ICMP	98	Echo (ping) request id=0x06c1, seq=2/
64	203.488230000	192.168.0.2	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06c1, seq=2/
65	204.492798000	220.18.4.67	192.168.0.2	ICMP	98	Echo (ping) request id=0x06c1, seq=3/
66	204.496268000	192.168.0.2	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06c1, seq=3/
67	205.493625000	220.18.4.67	192.168.0.2	ICMP	98	Echo (ping) request id=0x06c1, seq=4/
68	205.496411000	192.168.0.2	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06c1, seq=4/
69	207.490162000	BbnInter_94:fb:28	BbnInter_4a:78:87	ARP	42	Who has 220.18.4.67? Tell 220.18.4.66
70	207.490194000	BbnInter_4a:78:87	BbnInter_94:fb:28	ARP	42	220.18.4.67 is at 02:04:06:4a:78:87

Frame 19: 32 bytes on wire (256 bits), 32 bytes captured (256 bits) on interface 0

Ethernet II, Src: BbnInter\_4a:78:87 (02:04:06:4a:78:87), Dst: Broadcast (ff:ff:ff:ff:ff:ff)

ATAoverEthernet

```

0000 ff ff ff ff ff ff 02 04 06 4a 78 87 88 a2 10 00  ....Jx....
0010 ff ff ff 01 00 00 00 00 00 00 00 00 00 00 00  ....

```

eth0: <live capture in progress> Packets: 70 Displayed: 70 Marked: 0 Profile: Default

## 3.12.1.2 Vers entrepôt

Capturing from eth0 [Wireshark 1.8.2] (sur mA1)

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
40	129.688324000	220.18.4.126	220.18.4.67	DHCP	342	DHCP ACK - Transaction ID 0x7d9d3
41	134.613522000	BbnInter_4a:78:87	BbnInter_e2:64:f6	ARP	42	Who has 220.18.4.126? Tell 220.18.4.6
42	134.615780000	BbnInter_e2:64:f6	BbnInter_4a:78:87	ARP	42	220.18.4.126 is at 02:04:06:e2:64:f6
43	135.603724000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.66? Tell 220.18.4.67
44	135.605909000	BbnInter_94:fb:28	BbnInter_4a:78:87	ARP	42	220.18.4.66 is at 02:04:06:94:fb:28
45	135.605931000	220.18.4.67	220.18.4.130	ICMP	98	Echo (ping) request id=0x06c0, seq=1/
46	136.697761000	220.18.4.67	220.18.4.130	ICMP	98	Echo (ping) request id=0x06c0, seq=2/
47	137.512658000	BbnInter_4a:78:87	Broadcast	AoE	32	Query Config Information Request
48	137.697784000	220.18.4.67	220.18.4.130	ICMP	98	Echo (ping) request id=0x06c0, seq=3/
49	138.705960000	220.18.4.67	220.18.4.130	ICMP	98	Echo (ping) request id=0x06c0, seq=4/
50	139.721497000	220.18.4.67	220.18.4.130	ICMP	98	Echo (ping) request id=0x06c0, seq=5/
51	139.906926000	220.18.4.69	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x238fa
52	140.726672000	220.18.4.67	220.18.4.130	ICMP	98	Echo (ping) request id=0x06c0, seq=6/
53	159.255145000	220.18.4.69	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x238fa
54	162.851368000	BbnInter_e2:64:f6	Broadcast	AoE	32	Query Config Information Request
55	168.075065000	220.18.4.69	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x238fa

Frame 19: 32 bytes on wire (256 bits), 32 bytes captured (256 bits) on interface 0  
 Ethernet II, Src: BbnInter\_4a:78:87 (02:04:06:4a:78:87), Dst: Broadcast (ff:ff:ff:ff:ff:ff)  
 ATAoverEthernet

0000 ff ff ff ff ff ff 02 04 06 4a 78 87 88 a2 10 00 .....Jx.....  
 0010 ff ff ff 01 00 00 00 00 00 00 00 00 00 00 00 .....Jx.....

eth0: <live capture in progress> Packets: 55 Displayed: 55 Marked: 0 Profile: Default

## 3.12.1.3 Vers sAppFTP

Capturing from eth0 [Wireshark 1.8.2] (sur mA1)

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	BbnInter_33:e6:ff	Broadcast	AoE	32	Query Config Information Request
2	4.663408000	BbnInter_94:fb:28	Broadcast	AoE	32	Query Config Information Request
3	6.704692000	BbnInter_4a:78:87	Broadcast	ARP	42	Who has 220.18.4.66? Tell 220.18.4.67
4	6.706123000	BbnInter_94:fb:28	BbnInter_4a:78:87	ARP	42	220.18.4.66 is at 02:04:06:94:fb:28
5	6.706150000	220.18.4.67	220.18.4.61	ICMP	98	Echo (ping) request id=0x06b3, seq=1/
6	6.707160000	BbnInter_94:fb:28	Broadcast	ARP	42	Who has 220.18.4.65? Tell 220.18.4.67
7	6.711673000	BbnInter_33:e6:ff	Broadcast	ARP	42	Who has 220.18.4.67? Tell 220.18.4.67
8	6.711706000	BbnInter_4a:78:87	BbnInter_33:e6:ff	ARP	42	220.18.4.67 is at 02:04:06:4a:78:87
9	6.712739000	220.18.4.61	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06b3, seq=1/
10	7.761590000	220.18.4.67	220.18.4.61	ICMP	98	Echo (ping) request id=0x06b3, seq=1/
11	7.763328000	220.18.4.66	220.18.4.67	ICMP	126	Redirect (Redirect for host)
12	7.765606000	220.18.4.61	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06b3, seq=1/
13	8.764742000	220.18.4.67	220.18.4.61	ICMP	98	Echo (ping) request id=0x06b3, seq=1/
14	8.768216000	220.18.4.61	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06b3, seq=1/
15	12.770223000	BbnInter_94:fb:28	BbnInter_4a:78:87	ARP	42	Who has 220.18.4.67? Tell 220.18.4.67
16	12.770235000	BbnInter_4a:78:87	BbnInter_94:fb:28	ARP	42	220.18.4.67 is at 02:04:06:4a:78:87
17	13.825142000	BbnInter_4a:78:87	BbnInter_33:e6:ff	ARP	42	Who has 220.18.4.65? Tell 220.18.4.67
18	13.826978000	BbnInter_33:e6:ff	BbnInter_4a:78:87	ARP	42	220.18.4.65 is at 02:04:06:33:e6:ff
19	17.194536000	BbnInter_4a:78:87	Broadcast	AoE	32	Query Config Information Request

Frame 19: 32 bytes on wire (256 bits), 32 bytes captured (256 bits) on interface 0  
 Ethernet II, Src: BbnInter\_4a:78:87 (02:04:06:4a:78:87), Dst: Broadcast (ff:ff:ff:ff:ff:ff)  
 ATAoverEthernet

0000 ff ff ff ff ff ff 02 04 06 4a 78 87 88 a2 10 00 .....Jx.....  
 0010 ff ff ff 01 00 00 00 00 00 00 00 00 00 00 00 .....Jx.....

eth0: <live capture in progress> Packets: 19 Displayed: 19 Marked: 0 Profile: Default



## 3.12.1.4 Vers sAppEnt

Capturing from eth0 [Wireshark 1.8.2] (sur mA1)

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
12	7.765606000	220.18.4.61	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06b3, se
13	8.764742000	220.18.4.67	220.18.4.61	ICMP	98	Echo (ping) request id=0x06b3, se
14	8.768216000	220.18.4.61	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06b3, se
15	12.770223000	BbnInter_94:fb:28	BbnInter_4a:78:87	ARP	42	Who has 220.18.4.67? Tell 220.18.
16	12.770235000	BbnInter_4a:78:87	BbnInter_94:fb:28	ARP	42	220.18.4.67 is at 02:04:06:4a:78:8
17	13.825142000	BbnInter_4a:78:87	BbnInter_33:e6:ff	ARP	42	Who has 220.18.4.65? Tell 220.18.
18	13.826978000	BbnInter_33:e6:ff	BbnInter_4a:78:87	ARP	42	220.18.4.65 is at 02:04:06:33:e6:f
19	17.194536000	BbnInter_4a:78:87	Broadcast	AoE	32	Query Config Information Request
20	42.528578000	BbnInter_e2:64:f6	Broadcast	AoE	32	Query Config Information Request
21	60.156981000	BbnInter_33:e6:ff	Broadcast	AoE	32	Query Config Information Request
22	64.833930000	BbnInter_94:fb:28	Broadcast	AoE	32	Query Config Information Request
23	69.362276000	220.18.4.67	220.18.4.62	ICMP	98	Echo (ping) request id=0x06b4, se
24	69.366871000	220.18.4.62	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06b4, se
25	70.369561000	220.18.4.67	220.18.4.62	ICMP	98	Echo (ping) request id=0x06b4, se
26	70.373895000	220.18.4.62	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06b4, se
27	71.375607000	220.18.4.67	220.18.4.62	ICMP	98	Echo (ping) request id=0x06b4, se
28	71.379828000	220.18.4.62	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06b4, se
29	72.377773000	220.18.4.67	220.18.4.62	ICMP	98	Echo (ping) request id=0x06b4, se
30	72.381929000	220.18.4.62	220.18.4.67	ICMP	98	Echo (ping) reply id=0x06b4, se
31	74.458145000	BbnInter_33:e6:ff	BbnInter_4a:78:87	ARP	42	Who has 220.18.4.67? Tell 220.18.
32	74.458171000	BbnInter_4a:78:87	BbnInter_33:e6:ff	ARP	42	220.18.4.67 is at 02:04:06:4a:78:8
33	77.393178000	BbnInter_4a:78:87	Broadcast	AoE	32	Query Config Information Request

0000 ff ff ff ff ff ff 02 04 06 4a 78 87 88 a2 10 00 .....Jx.....  
 0010 ff ff ff 01 00 00 00 00 00 00 00 00 00 00 00 .....  
 eth0: <live capture in progress> Packets: 33 Displayed: 33 Marked: 0 Profile: Default

## 3.12.2 Depuis entrepôt

## 3.12.2.1 Vers la GATEWAY

Capturing from eth0 [Wireshark 1.8.2] (sur mE4)

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
283	891.089554000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134
284	892.087013000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134
285	893.095864000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134
286	898.657013000	220.18.4.134	192.168.0.2	ICMP	98	Echo (ping) request id=0x0714, seq=1/256, ttl=64
287	898.658582000	220.18.4.129	220.18.4.134	ICMP	126	Destination unreachable (Network unreachable)
288	899.667362000	220.18.4.134	192.168.0.2	ICMP	98	Echo (ping) request id=0x0714, seq=2/512, ttl=64
289	899.669593000	220.18.4.129	220.18.4.134	ICMP	126	Destination unreachable (Network unreachable)
290	900.217440000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
291	900.645614000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134
292	900.677109000	220.18.4.134	192.168.0.2	ICMP	98	Echo (ping) request id=0x0714, seq=3/768, ttl=64
293	900.678982000	220.18.4.129	220.18.4.134	ICMP	126	Destination unreachable (Network unreachable)
294	901.328747000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
295	901.641456000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134
296	901.684692000	220.18.4.134	192.168.0.2	ICMP	98	Echo (ping) request id=0x0714, seq=4/1024, ttl=64
297	901.686611000	220.18.4.129	220.18.4.134	ICMP	126	Destination unreachable (Network unreachable)
298	902.328854000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
299	902.690200000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.134

Frame 1: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface 0  
 0000 ff ff ff ff ff ff 02 04 06 f8 44 cf 08 06 00 01 .....D.....  
 0010 08 00 06 04 00 01 02 04 06 f8 44 cf dc 12 04 86 .....D.....  
 0020 00 00 00 00 00 00 dc 12 04 be .....  
 eth0: <live capture in progres...> Packets: 309 Displayed: 309 Marked: 0 Profile: Default

## 3.12.2.2 Vers administratif

Capturing from eth0 [Wireshark 1.8.2] (sur mE4)

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
216	731.772149000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
217	732.783468000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
218	738.381666000	BbnInter_77:d3:04	Broadcast	AoE	32	Query Config Information Request
219	740.903734000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
220	741.904269000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
221	742.902995000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
222	744.463070000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 220.18.4.129? Tell 220.18.4.134
223	744.463635000	BbnInter_77:d3:04	BbnInter_f8:44:cf	ARP	42	220.18.4.129 is at 02:04:06:77:d3:04
224	744.463641000	220.18.4.134	220.18.4.70	ICMP	98	Echo (ping) request id=0x0712, seq=1/256, ttl=64
225	744.464015000	220.18.4.129	220.18.4.134	ICMP	126	Destination unreachable (Network unreachable)
226	745.465223000	220.18.4.134	220.18.4.70	ICMP	98	Echo (ping) request id=0x0712, seq=2/512, ttl=64
227	745.467367000	220.18.4.129	220.18.4.134	ICMP	126	Destination unreachable (Network unreachable)
228	746.466611000	220.18.4.134	220.18.4.70	ICMP	98	Echo (ping) request id=0x0712, seq=3/768, ttl=64
229	746.468871000	220.18.4.129	220.18.4.134	ICMP	126	Destination unreachable (Network unreachable)
230	749.545872000	BbnInter_77:d3:04	BbnInter_f8:44:cf	ARP	42	Who has 220.18.4.134? Tell 220.18.4.129
231	749.545898000	BbnInter_f8:44:cf	BbnInter_77:d3:04	ARP	42	220.18.4.134 is at 02:04:06:f8:44:cf
232	752.361775000	BbnInter_c0:f4:0e	Broadcast	AoE	32	Query Config Information Request

Frame 1: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface 0

```

0000 ff ff ff ff ff ff 02 04 06 f8 44 cf 08 06 00 01 .....D.....
0010 08 00 06 04 00 01 02 04 06 f8 44 cf dc 12 04 86 .....D.....
0020 00 00 00 00 00 00 dc 12 04 be .....

```

eth0: <live capture in progress> Packets: 242 Displayed: 242 Marked: 0 Profile: Default

## 3.12.2.3 Vers sAppFTP

Capturing from eth0 [Wireshark 1.8.2] (sur mE4)

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
251	812.577982000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
252	813.641414000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
253	814.639367000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
254	824.225546000	220.18.4.134	220.18.4.61	ICMP	98	Echo (ping) request id=0x0713, seq=1/256, ttl=64
255	824.229716000	220.18.4.61	220.18.4.134	ICMP	98	Echo (ping) reply id=0x0713, seq=1/256, ttl=63
256	825.235876000	220.18.4.134	220.18.4.61	ICMP	98	Echo (ping) request id=0x0713, seq=2/512, ttl=64
257	825.239690000	220.18.4.61	220.18.4.134	ICMP	98	Echo (ping) reply id=0x0713, seq=2/512, ttl=63
258	826.240110000	220.18.4.134	220.18.4.61	ICMP	98	Echo (ping) request id=0x0713, seq=3/768, ttl=64
259	826.243964000	220.18.4.61	220.18.4.134	ICMP	98	Echo (ping) reply id=0x0713, seq=3/768, ttl=63
260	829.239689000	BbnInter_77:d3:04	BbnInter_f8:44:cf	ARP	42	Who has 220.18.4.134? Tell 220.18.4.129
261	829.239712000	BbnInter_f8:44:cf	BbnInter_77:d3:04	ARP	42	220.18.4.134 is at 02:04:06:f8:44:cf
262	830.267928000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
263	831.273769000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
264	832.274351000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
265	842.693651000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
266	842.940536000	BbnInter_f8:44:cf	Broadcast	AoE	32	Query Config Information Request
267	843.688440000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132
268	844.690480000	BbnInter_c0:f4:0e	Broadcast	ARP	42	Who has 220.18.4.190? Tell 220.18.4.132

Frame 1: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface 0

```

0000 ff ff ff ff ff ff 02 04 06 f8 44 cf 08 06 00 01 .....D.....
0010 08 00 06 04 00 01 02 04 06 f8 44 cf dc 12 04 86 .....D.....
0020 00 00 00 00 00 00 dc 12 04 be .....

```

eth0: <live capture in progress> Packets: 268 Displayed: 268 Marked: 0 Profile: Default

## 3.12.2.3 Vers sAppEnt

Capturing from eth0 [Wireshark 1.8.2] (sur mE4)

File Edit View Go Capture Analyze Statistics Telephony Tools Internals Help

Filter: Expression... Clear Apply Save

No.	Time	Source	Destination	Protocol	Length	Info
3	0.999686000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 22
4	2.001232000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 22
5	6.537636000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 22
6	7.536232000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 22
7	8.575598000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 22
8	11.682142000	BbnInter_f8:44:cf	Broadcast	ARP	42	Who has 22
9	11.684569000	BbnInter_77:d3:04	BbnInter_f8:44:cf	ARP	42	220.18.4.1
10	11.684589000	220.18.4.134	220.18.4.62	ICMP	98	Echo (ping
11	11.689105000	220.18.4.62	220.18.4.134	ICMP	98	Echo (ping
12	12.683812000	220.18.4.134	220.18.4.62	ICMP	98	Echo (ping
13	12.686952000	220.18.4.62	220.18.4.134	ICMP	98	Echo (ping
14	13.694168000	220.18.4.134	220.18.4.62	ICMP	98	Echo (ping
15	13.698010000	220.18.4.62	220.18.4.134	ICMP	98	Echo (ping
16	14.701109000	220.18.4.134	220.18.4.62	ICMP	98	Echo (ping
17	14.704631000	220.18.4.62	220.18.4.134	ICMP	98	Echo (ping
18	16.480570000	BbnInter_77:d3:04	Broadcast	AoE	32	Query Conf
19	16.698648000	BbnInter_77:d3:04	BbnInter_f8:44:cf	ARP	42	Who has 22
20	16.698648000	BbnInter_f8:44:cf	BbnInter_77:d3:04	ARP	42	220.18.4.1

Frame 1: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface 0

```

0000  ff ff ff ff ff ff 02 04 06 f8 44 cf 08 06 00 01  .....D.....
0010  08 00 06 04 00 01 02 04 06 f8 44 cf dc 12 04 86  .....D.....
0020  00 00 00 00 00 00 dc 12 04 be  .....

```

eth0: <live capture in progress> | Packets: 24 Displayed: 24 Marked: 0 | Profile: Default

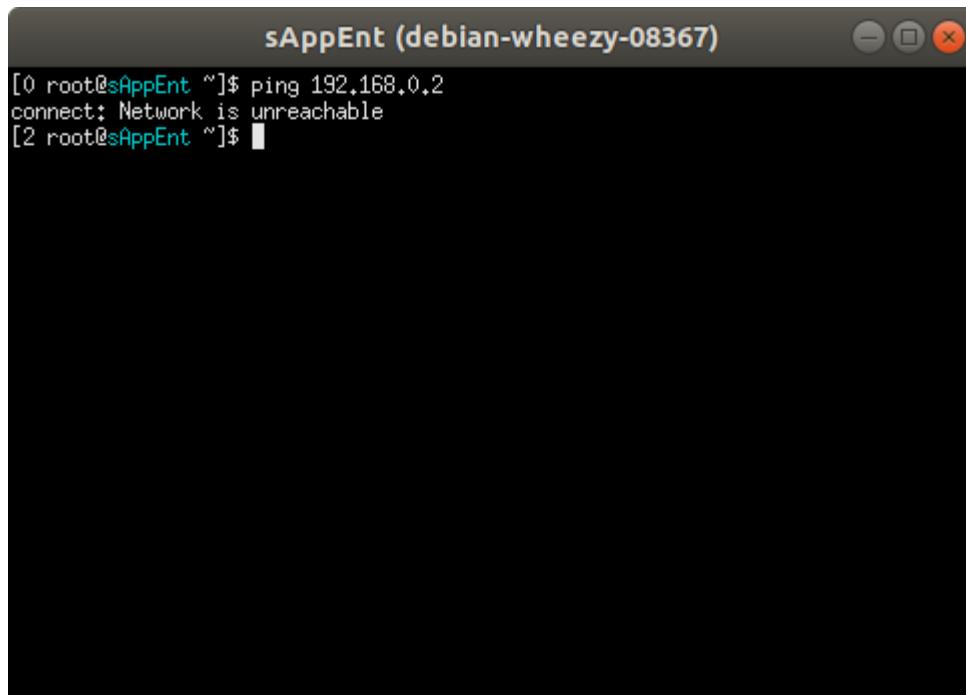
## 3.12.3 Depuis sAppFTP

## 3.12.3.1 Vers la GATEWAY

```

routeur2 (debian-wheezy-08367)
[0 root@sAppFTP ~]$ ping 192.168.0.2
connect: Network is unreachable
[2 root@sAppFTP ~]$

```

**3.12.4 Depuis sAppEnt****3.12.4.1 Vers la GATEWAY**A terminal window titled "sAppEnt (debian-wheezy-08367)" with standard window controls. The terminal shows a root user at the sAppEnt prompt. The user enters the command "ping 192.168.0.2". The output is "connect: Network is unreachable". The user then enters a second prompt character "[2" and the terminal returns to the root@sAppEnt prompt.

```
sAppEnt (debian-wheezy-08367)
[0 root@sAppEnt ~]$ ping 192.168.0.2
connect: Network is unreachable
[2 root@sAppEnt ~]$
```