

# Membangun Router dengan OpenSolaris

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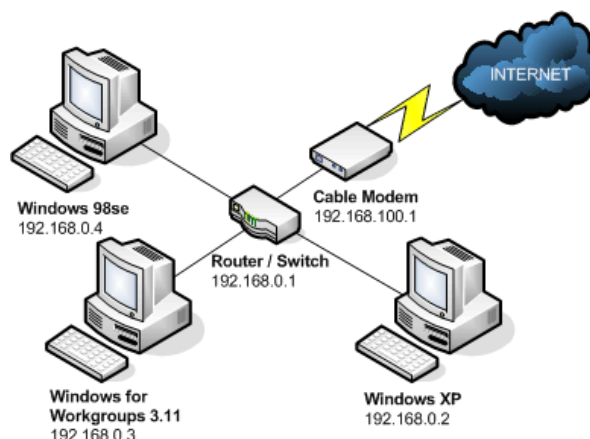
## *Lisensi Dokumen:*

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Proses routing adalah sebuah proses untuk meneruskan paket-paket jaringan dari satu jaringan ke jaringan lainnya melalui sebuah internetwork. Untuk melakukan hal ini, digunakanlah sebuah perangkat jaringan yang disebut sebagai router. Untuk membangun sebuah router dibutuhkan minimal 2 ethernet card.

Pada tulisan kali ini akan difokuskan pada pembuatan router dengan menggunakan OpenSolaris sebagai sistem operasinya.



Source : [www.garethjmsaunders.co.uk](http://www.garethjmsaunders.co.uk)

Untuk melakukan setup router OpenSolaris ada beberapa langkah yang harus dilakukan :

## 1. Siapkan Ethernet Card

Tambahkan 2 ethernet card ke box OpenSolaris yang akan dijadikan sebagai router. Setelah di pasang, cek apakah sudah terdeteksi Ethernet-nya dengan menggunakan perintah **ifconfig -a**.

Pada kasus kali ini, kita akan membuat router yang yang menghubungkan jaringan LAN dengan jaringan internet di kampus penulis. Untuk melakukan koneksi internet, penulis harus setting VPN Client terlebih dulu, bisa baca dari tulisan sebelumnya “*Setting VPN Client di OpenSolaris*”. Setelah koneksi PPTP terbentuk barulah penulis bisa koneksi internet.

```
# ifconfig -a

lo0: flags=2001000849<UP,LOOPBACK,RUNNING,MULTICAST,IPv4,VIRTUAL> mtu
8232 index 1

    inet 127.0.0.1 netmask ff000000

pcn0: flags=1100843<UP,BROADCAST,RUNNING,MULTICAST,ROUTER,IPv4> mtu
1500 index 5

    inet 10.14.206.164 netmask fffffff0 broadcast 10.14.206.255
    ether 0:c:29:26:b:ac

pcn1: flags=1100843<UP,BROADCAST,RUNNING,MULTICAST,ROUTER,IPv4> mtu
1500 index 8

    inet 192.168.10.1 netmask fffffff0 broadcast 192.168.10.255
    ether 0:c:29:26:b:b6

lo0: flags=2002000849<UP,LOOPBACK,RUNNING,MULTICAST,IPv6,VIRTUAL> mtu
8252 index 1

    inet6 ::1/128
```

Note :

- Pada informasi diatas terdapat dua ethernet yaitu pcn0 dan pcn1
- pcn0 (internet) untuk dial PPTP Server sehingga nanti terbentuk spps0
- pcn1 (intranet) untuk intranet
- menggunakan IPv4

## 2. Koneksikan ke Internet

Kemudian langkah selanjutnya yaitu mensetting agar OpenSolaris dapat terhubung ke internet. Penulis melakukan dial VPN Client agar dapat melakukan koneksi internet. Silahkan lihat bagaimana mensetting VPN PPTP Client di OpenSolaris pada tulisan sebelumnya.

Langsung dial VPN PPTP Client

```
# ./pptp-client &
[1] 4004
20:15:03 root@opensolaris:~
# serial speed set to 38400 bps
Using interface sPPP0
Connect: sPPP0 <--> /dev/pts/4
sent [LCP ConfReq id=0x54 <asyncmap 0x0> <magic 0x64adf260> <pcomp>
<accomp>]
rcvd [LCP ConfReq id=0x51 <accomp> <pcomp> <mru 1500> <magic 0xa64ee94c>
<auth chap m$oft-v2>]
sent [LCP ConfAck id=0x51 <accomp> <pcomp> <mru 1500> <magic 0xa64ee94c>
<auth chap m$oft-v2>]
rcvd [LCP ConfReq id=0x52 <accomp> <pcomp> <mru 1500> <magic 0xa64ee94c>
<auth chap m$oft-v2>]
sent [LCP ConfAck id=0x52 <accomp> <pcomp> <mru 1500> <magic 0xa64ee94c>
<auth chap m$oft-v2>]
rcvd [LCP ConfAck id=0x54 <asyncmap 0x0> <magic 0x64adf260> <pcomp>
<accomp>]
sent [LCP Ident id=0x55 magic=0x64adf260 "ppp-2.4.0b1 (Sun Microsystems,
Inc.)"]
Authenticating to peer with MS-CHAPv2
rcvd [LCP ConfReq id=0x53 <accomp> <pcomp> <mru 1500> <magic 0xa64ee94c>
<auth chap m$oft-v2>]
sent [LCP ConfReq id=0x56 <asyncmap 0x0> <magic 0x12963738> <pcomp>
<accomp>]
sent [LCP ConfAck id=0x53 <accomp> <pcomp> <mru 1500> <magic 0xa64ee94c>
<auth chap m$oft-v2>]
```

rcvd [LCP ConfAck id=0x56 <asyncmap 0x0> <magic 0x12963738> <pcomp>  
<accomp>]

sent [LCP Ident id=0x57 magic=0x12963738 "ppp-2.4.0b1 (Sun Microsystems,  
Inc.)"]

Authenticating to peer with MS-CHAPv2

rcvd [CHAP Challenge id=0x1 <bb1e682b5fd1e3e9b28c5a578af7a9e4>, name = ""]

sent [CHAP Response id=0x1  
<d74f8fa07e9cc63114f198d2c945db7900000000000000008f0f8092f98e7c836d58  
86b49128e9258daed58efa2a637900>, name = "112050164"]

rcvd [CHAP Success id=0x1  
"S=05E5C96ED642A05ABC63A0235BC29B2CBF353C20"]

Remote message: S=05E5C96ED642A05ABC63A0235BC29B2CBF353C20

sent [IPCP ConfReq id=0xb7 <addr 0.0.0.0> <compress VJ Of 01>]

sent [CCP ConfReq id=0x45 <deflate 15> <deflate(old#) 15> <bsd v1 15>]

rcvd [IPCP ConfReq id=0x7 <addr 172.16.1.1> <compress VJ Of 00>]

sent [IPCP ConfAck id=0x7 <addr 172.16.1.1> <compress VJ Of 00>]

rcvd [CCP ConfReq id=0xff <MPPE length 6>]

sent [CCP ConfRej id=0xff <MPPE length 6>]

rcvd [IPCP ConfNak id=0xb7 <addr 172.16.18.96>]

sent [IPCP ConfReq id=0xb8 <addr 172.16.18.96> <compress VJ Of 01>]

rcvd [CCP ConfReq id=0x0]

sent [CCP ConfAck id=0x0]

rcvd [IPCP ConfAck id=0xb8 <addr 172.16.18.96> <compress VJ Of 01>]

local IP address 172.16.18.96

remote IP address 172.16.1.1

sent [CCP ConfReq id=0x45 <deflate 15> <deflate(old#) 15> <bsd v1 15>]

rcvd [CCP ConfRej id=0x45 <deflate 15> <deflate(old#) 15> <bsd v1 15>]

sent [CCP ConfReq id=0x46]

rcvd [CCP ConfAck id=0x46]

rcvd [CCP TermReq id=0x1]

```
CCP terminated by peer
sent [CCP TermAck id=0x1]
Compression disabled by peer.
```

Cek perubahannya dengan menggunakan perintah **ifconfig -a**.

```
# ifconfig -a

lo0: flags=2001000849<UP,LOOPBACK,RUNNING,MULTICAST,IPv4,VIRTUAL> mtu
8232 index 1

    inet 127.0.0.1 netmask ffffffff

pcn0: flags=1100843<UP,BROADCAST,RUNNING,MULTICAST,ROUTER,IPv4> mtu
1500 index 5

    inet 10.14.206.164 netmask fffffff0 broadcast 10.14.206.255
    ether 0:c:29:26:b:ac

pcn1: flags=1100843<UP,BROADCAST,RUNNING,MULTICAST,ROUTER,IPv4> mtu
1500 index 8

    inet 192.168.10.1 netmask fffffff0 broadcast 192.168.10.255
    ether 0:c:29:26:b:b6

sppp0:
flags=10011008d1<UP,POINTOPOINT,RUNNING,NOARP,MULTICAST,ROUTER,IPv4,
FIXEDMTU> mtu 1500 index 10

    inet 172.16.18.96 --> 172.16.1.1 netmask ffff0000
    ether 0:0:0:0:0:0

lo0: flags=2002000849<UP,LOOPBACK,RUNNING,MULTICAST,IPv6,VIRTUAL> mtu
8252 index 1

    inet6 ::1/128
```

Note :

- sppp0 (internet) nanti sebagai tujuan NAT-nya

### 3. Aktifkan IP Forwarding OpenSolaris

Sekarang kita aktifkan ip forwarding menggunakan perintah **svcadm**.

Cek status sebelumnya :

```
# svcs -a | grep forward
disabled 10:15:37 svc:/network/ipv6-forwarding:default
disabled 10:16:04 svc:/network/ipv4-forwarding:default
```

```
# svcadm enable network/ipv4-forwarding
```

```
# svcs -a | grep forward
disabled 10:15:37 svc:/network/ipv6-forwarding:default
online   10:16:04 svc:/network/ipv4-forwarding:default
```

```
# routeadm
```

Configuration Option	Current Configuration	Current System State
IPv4 routing	disabled	disabled
IPv6 routing	disabled	disabled
IPv4 forwarding	enabled	enabled
IPv6 forwarding	disabled	disabled

```
Routing services "route:default ripng:default"
```

```
Routing daemons:
```

```
STATE FMRI
online  svc:/network/routing/ndp:default
disabled  svc:/network/routing/ripng:default
disabled  svc:/network/routing/rdisc:default
disabled  svc:/network/routing/legacy-routing:ipv4
disabled  svc:/network/routing/legacy-routing:ipv6
disabled  svc:/network/routing/route:default
```

## 4. Setting NAT OpenSolaris

sppp0 (internet)

pcn1 (intranet)

Untuk membuat NAT-nya, kita menggunakan perintah **ipnat**. Inputkan rule NAT pada file `/etc/ipf/ipnat.conf`. Kalau belum ada bisa buat sendiri file `ipnat.conf`-nya.

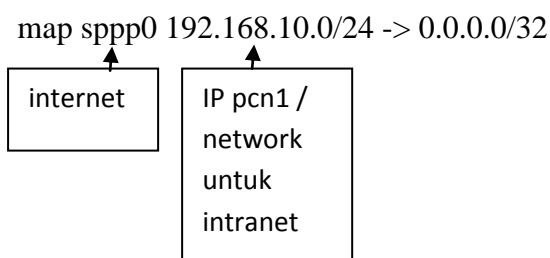
```
# cd /etc/ipf/  
  
# ls  
ipf.conf ipnat.conf  
  
# vi ipnat.conf  
  
map sppp0 192.168.10.0/24 -> 0/32
```

Trus load rule baru :

```
# ipnat -CF -f /etc/ipf/ipnat.conf  
0 entries flushed from NAT table  
4 entries flushed from NAT list
```

List rule NAT :

```
# ipnat -l  
List of active MAP/Redirect filters:  
map sppp0 192.168.10.0/24 -> 0.0.0.0/32  
List of active sessions:
```



Pembuatan NAT selesai.

## 5. Monitoring

Untuk melakukan monitoring router OpenSolaris menggunakan perintah `ipmon -o N`

```
# ipmon -o N
```

24/10/2009 20:48:35.777684 @1 NAT:MAP 192.168.10.5,4628 <- -> 172.16.18.96,4628  
[172.16.1.1,8080]

24/10/2009 20:48:36.103284 @1 NAT:MAP 192.168.10.5,4629 <- -> 172.16.18.96,4629  
[172.16.1.1,8080]

24/10/2009 20:48:36.525859 @1 NAT:MAP 192.168.10.5,4630 <- -> 172.16.18.96,4630  
[172.16.1.1,8080]

24/10/2009 20:48:37.195479 @1 NAT:MAP 192.168.10.5,4631 <- -> 172.16.18.96,4631  
[172.16.1.1,8080]

24/10/2009 20:48:39.780535 @1 NAT:MAP 192.168.10.5,4632 <- -> 172.16.18.96,4632  
[172.16.1.1,8080]

24/10/2009 20:48:40.105915 @1 NAT:MAP 192.168.10.5,4633 <- -> 172.16.18.96,4633  
[172.16.1.1,8080]

24/10/2009 20:48:45.270423 @1 NAT:MAP 192.168.10.5,4634 <- -> 172.16.18.96,4634  
[172.16.1.1,8080]

24/10/2009 20:48:45.271815 @1 NAT:MAP 192.168.10.5,4635 <- -> 172.16.18.96,4635  
[172.16.1.1,8080]

24/10/2009 20:48:45.276922 @1 NAT:MAP 192.168.10.5,4636 <- -> 172.16.18.96,4636  
[172.16.1.1,8080]

24/10/2009 20:48:45.910257 @1 NAT:MAP 192.168.10.5,4637 <- -> 172.16.18.96,4637  
[172.16.1.1,8080]

24/10/2009 20:48:50.262456 @1 NAT:MAP 192.168.10.5,4638 <- -> 172.16.18.96,4638  
[172.16.1.1,8080]

24/10/2009 20:48:50.299181 @1 NAT:MAP 192.168.10.5,4639 <- -> 172.16.18.96,4639  
[172.16.1.1,8080]

24/10/2009 20:48:50.820562 @1 NAT:EXPIRE 192.168.10.5,4565 <- ->  
172.16.18.96,4565 [172.16.1.1,8080] Pkts 4/5 Bytes 1214/762

24/10/2009 20:48:50.820568 @1 NAT:EXPIRE 192.168.10.5,4562 <- ->  
172.16.18.96,4562 [172.16.1.1,8080] Pkts 14/12 Bytes 13207/1038

24/10/2009 20:48:50.820570 @1 NAT:EXPIRE 192.168.10.5,4567 <- ->  
172.16.18.96,4567 [172.16.1.1,8080] Pkts 5/6 Bytes 1972/800

24/10/2009 20:48:50.820572 @1 NAT:EXPIRE 192.168.10.5,4570 <- ->  
172.16.18.96,4570 [172.16.1.1,8080] Pkts 6/7 Bytes 5054/822

24/10/2009 20:48:51.320653 @1 NAT:EXPIRE 192.168.10.5,4574 <- ->  
172.16.18.96,4574 [172.16.1.1,8080] Pkts 6/7 Bytes 2586/1375

24/10/2009 20:48:52.320829 @1 NAT:EXPIRE 192.168.10.5,4576 <- ->  
172.16.18.96,4576 [172.16.1.1,8080] Pkts 21/15 Bytes 27562/1138

24/10/2009 20:48:52.704888 @1 NAT:MAP 192.168.10.5,4640 <- -> 172.16.18.96,4640  
[172.16.1.1,8080]

24/10/2009 20:48:53.321083 @1 NAT:EXPIRE 192.168.10.5,4572 <- ->  
172.16.18.96,4572 [172.16.1.1,8080] Pkts 4/6 Bytes 945/780

24/10/2009 20:48:53.820180 @1 NAT:EXPIRE 192.168.10.5,4568 <- ->  
172.16.18.96,4568 [172.16.1.1,8080] Pkts 4/7 Bytes 1237/857

24/10/2009 20:48:54.320206 @1 NAT:EXPIRE 192.168.10.5,4575 <- ->  
172.16.18.96,4575 [172.16.1.1,8080] Pkts 6/7 Bytes 2102/1342

24/10/2009 20:48:54.320213 @1 NAT:EXPIRE 192.168.10.5,4573 <- ->  
172.16.18.96,4573 [172.16.1.1,8080] Pkts 6/7 Bytes 1562/1505

24/10/2009 20:48:54.320215 @1 NAT:EXPIRE 192.168.10.5,4569 <- ->  
172.16.18.96,4569 [172.16.1.1,8080] Pkts 10/11 Bytes 7538/1994

24/10/2009 20:48:54.320218 @1 NAT:EXPIRE 192.168.10.5,4563 <- ->  
172.16.18.96,4563 [172.16.1.1,8080] Pkts 5/6 Bytes 1340/806

24/10/2009 20:48:54.320220 @1 NAT:EXPIRE 192.168.10.5,4564 <- ->  
172.16.18.96,4564 [172.16.1.1,8080] Pkts 5/6 Bytes 1630/805

24/10/2009 20:48:54.820326 @1 NAT:EXPIRE 192.168.10.5,4571 <- ->  
172.16.18.96,4571 [172.16.1.1,8080] Pkts 5/7 Bytes 3561/833

24/10/2009 20:48:55.320395 @1 NAT:EXPIRE 192.168.10.5,4579 <- ->  
172.16.18.96,4579 [172.16.1.1,8080] Pkts 7/8 Bytes 3835/2876

24/10/2009 20:48:55.320401 @1 NAT:EXPIRE 192.168.10.5,4582 <- ->  
172.16.18.96,4582 [172.16.1.1,8080] Pkts 6/7 Bytes 3611/2860

24/10/2009 20:48:59.320165 @1 NAT:EXPIRE 192.168.10.5,4566 <- ->  
172.16.18.96,4566 [172.16.1.1,8080] Pkts 4/8 Bytes 1327/887

24/10/2009 20:48:59.820170 @1 NAT:EXPIRE 192.168.10.5,4586 <- ->  
172.16.18.96,4586 [172.16.1.1,8080] Pkts 7/7 Bytes 2929/2202

24/10/2009 20:48:59.820177 @1 NAT:EXPIRE 192.168.10.5,4577 <- ->  
172.16.18.96,4577 [172.16.1.1,8080] Pkts 12/11 Bytes 6750/2991

24/10/2009 20:49:01.320500 @1 NAT:EXPIRE 192.168.10.5,4587 <- ->  
172.16.18.96,4587 [172.16.1.1,8080] Pkts 5/7 Bytes 1245/2202

24/10/2009 20:50:30.821021 @1 NAT:EXPIRE 192.168.10.5,4608 <- ->  
172.16.18.96,4608 [172.16.1.1,8080] Pkts 12/11 Bytes 12454/971

24/10/2009 20:50:31.820215 @1 NAT:EXPIRE 192.168.10.5,4609 <- ->  
172.16.18.96,4609 [172.16.1.1,8080] Pkts 11/9 Bytes 9279/861

24/10/2009 20:50:32.320322 @1 NAT:EXPIRE 192.168.10.5,4603 <- ->  
172.16.18.96,4603 [172.16.1.1,8080] Pkts 53/35 Bytes 64110/4753

24/10/2009 20:50:32.320329 @1 NAT:EXPIRE 192.168.10.5,4615 <- ->  
172.16.18.96,4615 [172.16.1.1,8080] Pkts 57/39 Bytes 76922/3547

24/10/2009 20:50:32.820425 @1 NAT:EXPIRE 192.168.10.5,4620 <- ->  
172.16.18.96,4620 [172.16.1.1,8080] Pkts 6/6 Bytes 2185/734

24/10/2009 20:50:33.820585 @1 NAT:EXPIRE 192.168.10.5,4602 <- ->  
172.16.18.96,4602 [172.16.1.1,8080] Pkts 32/26 Bytes 28676/9222

24/10/2009 20:50:33.820593 @1 NAT:EXPIRE 192.168.10.5,4625 <- ->  
172.16.18.96,4625 [172.16.1.1,8080] Pkts 6/6 Bytes 2161/763

24/10/2009 20:50:35.320818 @1 NAT:EXPIRE 192.168.10.5,4611 <- ->  
172.16.18.96,4611 [172.16.1.1,8080] Pkts 8/9 Bytes 3622/1324

24/10/2009 20:50:35.820884 @1 NAT:EXPIRE 192.168.10.5,4619 <- ->  
172.16.18.96,4619 [172.16.1.1,8080] Pkts 18/17 Bytes 19059/4056

24/10/2009 20:50:37.320208 @1 NAT:EXPIRE 192.168.10.5,4622 <- ->  
172.16.18.96,4622 [172.16.1.1,8080] Pkts 21/18 Bytes 24697/2431

24/10/2009 20:50:37.320217 @1 NAT:EXPIRE 192.168.10.5,4626 <- ->  
172.16.18.96,4626 [172.16.1.1,8080] Pkts 7/7 Bytes 2180/790

24/10/2009 20:50:37.320219 @1 NAT:EXPIRE 192.168.10.5,4614 <- ->  
172.16.18.96,4614 [172.16.1.1,8080] Pkts 7/6 Bytes 2793/725

24/10/2009 20:50:37.320221 @1 NAT:EXPIRE 192.168.10.5,4621 <- ->  
172.16.18.96,4621 [172.16.1.1,8080] Pkts 27/21 Bytes 31080/4571

24/10/2009 20:50:38.291328 @1 NAT:MAP 192.168.10.5,4643 <- -> 172.16.18.96,4643  
[172.16.1.1,8080]

24/10/2009 20:50:38.295469 @1 NAT:MAP 192.168.10.5,4644 <- -> 172.16.18.96,4644  
[172.16.1.1,8080]

24/10/2009 20:50:39.820607 @1 NAT:EXPIRE 192.168.10.5,4631 <- ->  
172.16.18.96,4631 [172.16.1.1,8080] Pkts 23/12 Bytes 27394/2447

24/10/2009 20:50:40.320711 @1 NAT:EXPIRE 192.168.10.5,4629 <- ->  
172.16.18.96,4629 [172.16.1.1,8080] Pkts 24/18 Bytes 21214/7336

24/10/2009 20:50:45.320573 @1 NAT:EXPIRE 192.168.10.5,4618 <- ->  
172.16.18.96,4618 [172.16.1.1,8080] Pkts 62/46 Bytes 81560/6133

24/10/2009 20:50:45.320579 @1 NAT:EXPIRE 192.168.10.5,4628 <- ->  
172.16.18.96,4628 [172.16.1.1,8080] Pkts 34/23 Bytes 38877/5162

24/10/2009 20:50:45.320581 @1 NAT:EXPIRE 192.168.10.5,4632 <- ->  
172.16.18.96,4632 [172.16.1.1,8080] Pkts 14/14 Bytes 9214/5881

24/10/2009 20:50:50.320452 @1 NAT:EXPIRE 192.168.10.5,4638 <- ->  
172.16.18.96,4638 [172.16.1.1,8080] Pkts 17/15 Bytes 19766/3560

24/10/2009 20:50:51.320685 @1 NAT:EXPIRE 192.168.10.5,4627 <- ->  
172.16.18.96,4627 [172.16.1.1,8080] Pkts 138/107 Bytes 179977/20368

24/10/2009 20:50:53.320990 @1 NAT:EXPIRE 192.168.10.5,4637 <- ->  
172.16.18.96,4637 [172.16.1.1,8080] Pkts 32/26 Bytes 36313/5491

24/10/2009 20:50:53.820166 @1 NAT:EXPIRE 192.168.10.5,4624 <- ->  
172.16.18.96,4624 [172.16.1.1,8080] Pkts 6/11 Bytes 3026/954

24/10/2009 20:50:54.820247 @1 NAT:EXPIRE 192.168.10.5,4639 <- ->  
172.16.18.96,4639 [172.16.1.1,8080] Pkts 9/11 Bytes 6439/4479

24/10/2009 20:50:57.320720 @1 NAT:EXPIRE 192.168.10.5,4633 <- ->  
172.16.18.96,4633 [172.16.1.1,8080] Pkts 27/22 Bytes 24374/3497

24/10/2009 20:50:59.820114 @1 NAT:EXPIRE 192.168.10.5,4635 <- ->  
172.16.18.96,4635 [172.16.1.1,8080] Pkts 54/44 Bytes 65176/8307

24/10/2009 20:51:01.320383 @1 NAT:EXPIRE 192.168.10.5,4580 <- ->  
172.16.18.96,4580 [172.16.1.1,8080] Pkts 95/75 Bytes 111523/21173

24/10/2009 20:51:01.732463 @1 NAT:MAP 192.168.10.5,4645 <- -> 172.16.18.96,4645  
[172.16.1.1,8080]

24/10/2009 20:51:01.736538 @1 NAT:MAP 192.168.10.5,4646 <- -> 172.16.18.96,4646  
[172.16.1.1,8080]

24/10/2009 20:51:13.320394 @1 NAT:EXPIRE 192.168.10.5,4634 <- ->  
172.16.18.96,4634 [172.16.1.1,8080] Pkts 62/45 Bytes 85899/4041

24/10/2009 20:51:38.880290 @1 NAT:MAP 192.168.10.5,4647 <- -> 172.16.18.96,4647  
[172.16.1.1,8080]

24/10/2009 20:51:38.882435 @1 NAT:MAP 192.168.10.5,4648 <- -> 172.16.18.96,4648  
[172.16.1.1,8080]

24/10/2009 20:51:38.883767 @1 NAT:MAP 192.168.10.5,4649 <- -> 172.16.18.96,4649  
[172.16.1.1,8080]

24/10/2009 20:51:38.885050 @1 NAT:MAP 192.168.10.5,4650 <- -> 172.16.18.96,4650  
[172.16.1.1,8080]

24/10/2009 20:51:38.886571 @1 NAT:MAP 192.168.10.5,4651 <- -> 172.16.18.96,4651  
[172.16.1.1,8080]

24/10/2009 20:51:38.888203 @1 NAT:MAP 192.168.10.5,4652 <- -> 172.16.18.96,4652  
[172.16.1.1,8080]

24/10/2009 20:51:38.889850 @1 NAT:MAP 192.168.10.5,4653 <- -> 172.16.18.96,4653  
[172.16.1.1,8080]

24/10/2009 20:51:39.202608 @1 NAT:MAP 192.168.10.5,4654 <- -> 172.16.18.96,4654  
[172.16.1.1,8080]

24/10/2009 20:51:41.247356 @1 NAT:MAP 192.168.10.5,4655 <- -> 172.16.18.96,4655  
[172.16.1.1,8080]

24/10/2009 20:51:47.928087 @1 NAT:MAP 192.168.10.5,4656 <- -> 172.16.18.96,4656  
[172.16.1.1,8080]

24/10/2009 20:51:47.961028 @1 NAT:MAP 192.168.10.5,4657 <- -> 172.16.18.96,4657  
[172.16.1.1,8080]

24/10/2009 20:51:49.435666 @1 NAT:MAP 192.168.10.5,4658 <- -> 172.16.18.96,4658  
[172.16.1.1,8080]

24/10/2009 20:51:49.443069 @1 NAT:MAP 192.168.10.5,4659 <- -> 172.16.18.96,4659  
[172.16.1.1,8080]

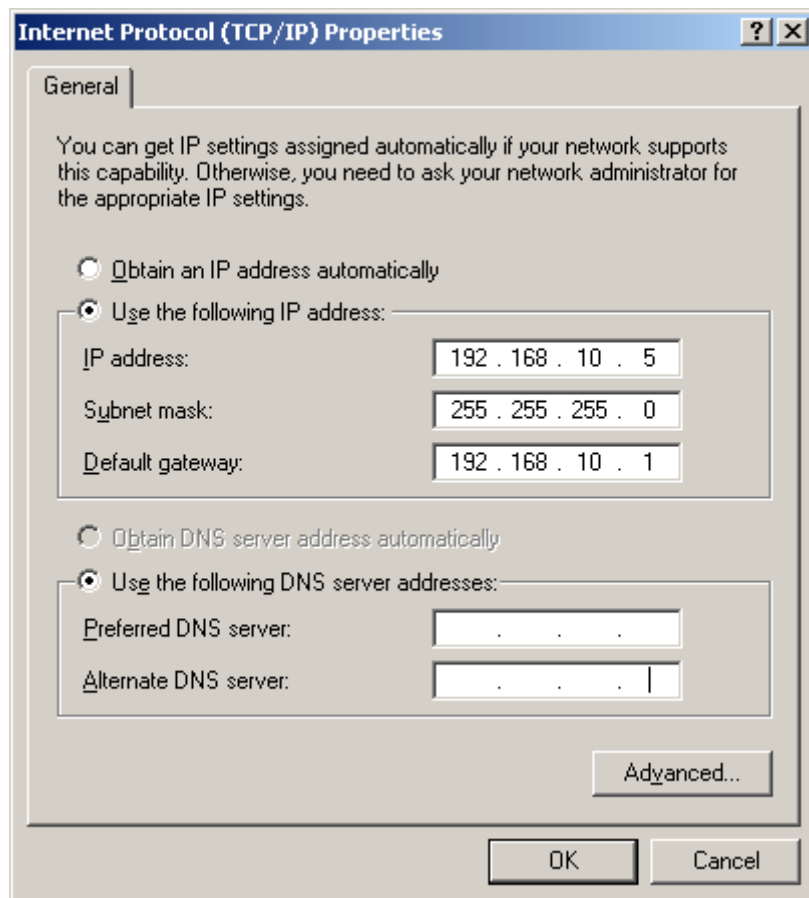
24/10/2009 20:51:50.320061 @1 NAT:EXPIRE 192.168.10.5,4630 <- ->  
172.16.18.96,4630 [172.16.1.1,8080] Pkts 56/47 Bytes 68327/9863

24/10/2009 20:51:50.320065 @1 NAT:EXPIRE 192.168.10.5,4640 <- ->  
172.16.18.96,4640 [172.16.1.1,8080] Pkts 29/22 Bytes 33844/5414

24/10/2009 20:51:50.416966 @1 NAT:MAP 192.168.10.5,4660 <- -> 172.16.18.96,4660  
[172.16.1.1,8080]

24/10/2009 20:51:50.421282 @1 NAT:MAP 192.168.10.5,4661 <- -> 172.16.18.96,4661  
[172.16.1.1,8080]

## 6. Setting Client di Windows XP



IP Address : 192.168.10.5

Subnet mask : 255.255.255.0

IP Gateway : 192.168.10.1 ( di isi dengan IP router OpenSolaris)

## Referensi

<http://danbordeanu.blogspot.com>

## Biografi Penulis



Agus Setiawan, Muslim, lahir di Kebumen, Jawa Tengah, 10 Agustus 1987. Saat ini sedang menyelesaikan skripsi di Institut Teknologi Telkom / IT Telkom Bandung jurusan Teknik Industri.

Aktifitas saat ini menjadi OpenSolaris Leader wilayah Bandung, Jawa Barat dan Asisten Dosen Jaringan Komputer di kampusnya.

Berpengalaman sebagai teknisi, lecture, trainer di lembaga training center dengan spesifikasi Unix, Linux dan Network. Punya cita-cita ingin menjadi unix/linux engineer yang expert di bidangnya. Sertifikasi IT yang dimilikinya yaitu *Sun Certified Solaris Associate*.

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