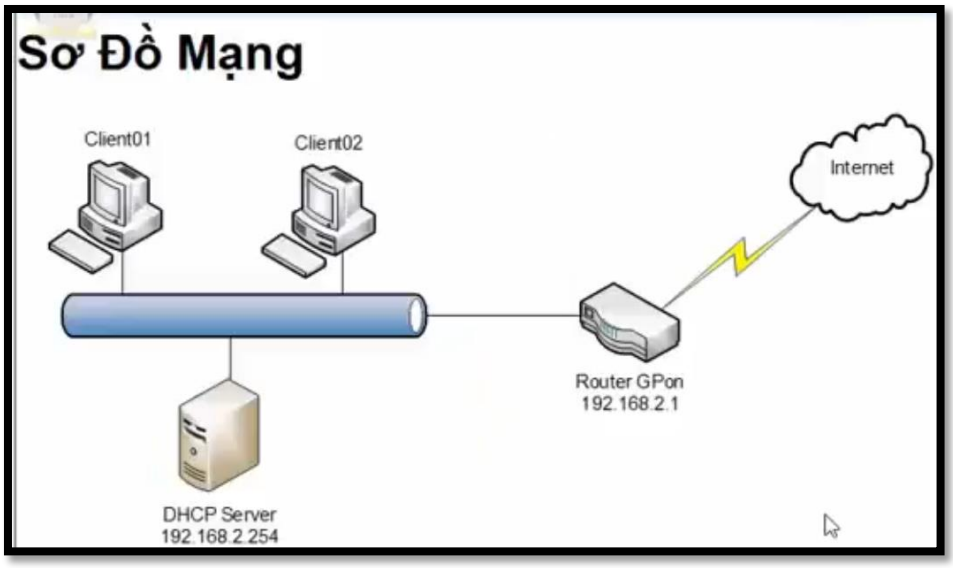
MẠNG MÁY TÍNH NÂNG CAO – THỰC HÀNH

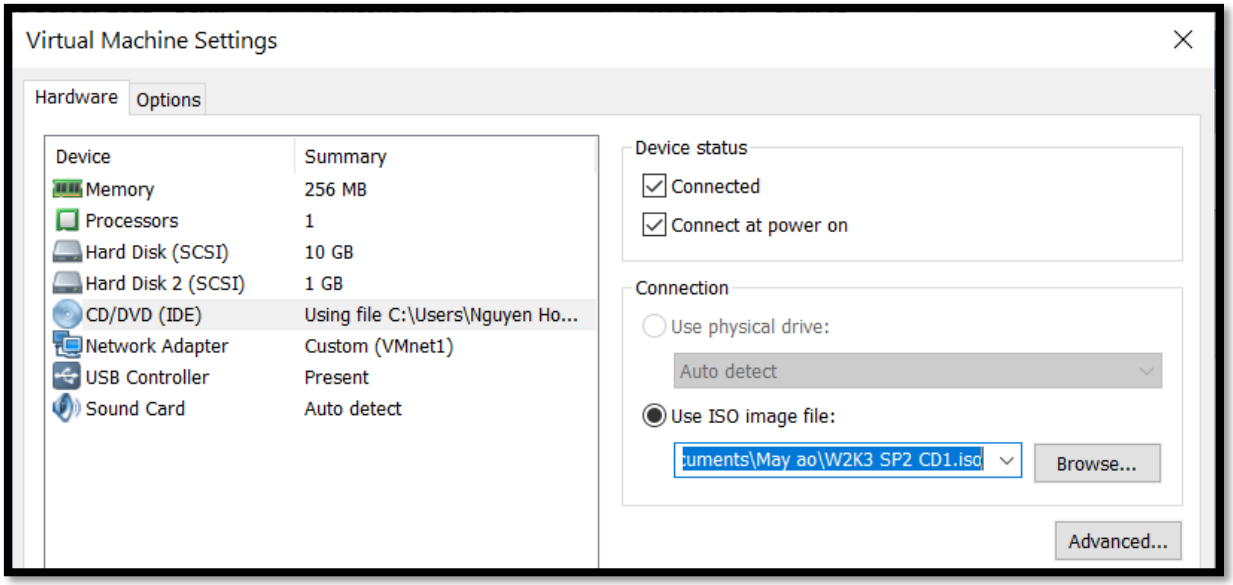
Lab 01 - Cài đặt và cấu hình DHCP Server (1 Server - 1 NIC + 2 Client)



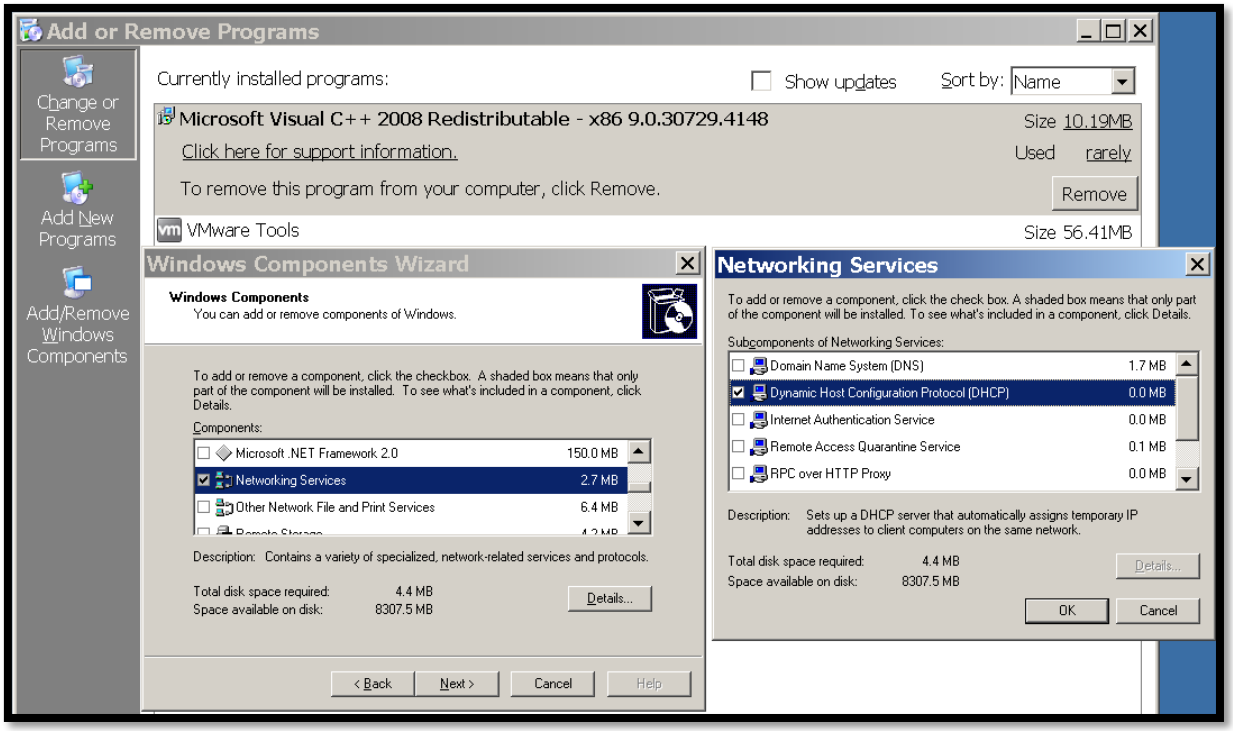
Windows Server 2003:

- **IP Address:** 192.168.2.254
- **Default Gateway:** 192.168.2.1

Cài đặt đĩa CD W2K3 SP2: → Tắt nguồn của máy ảo → Chuột phải vào máy ảo → Properties → Virtual Machine Settings hiện ra → CD/DVD (IDE) → Chọn file "W2K3 SP2 CD1.iso" → Tích chọn "Connected" và "Connect at power on"

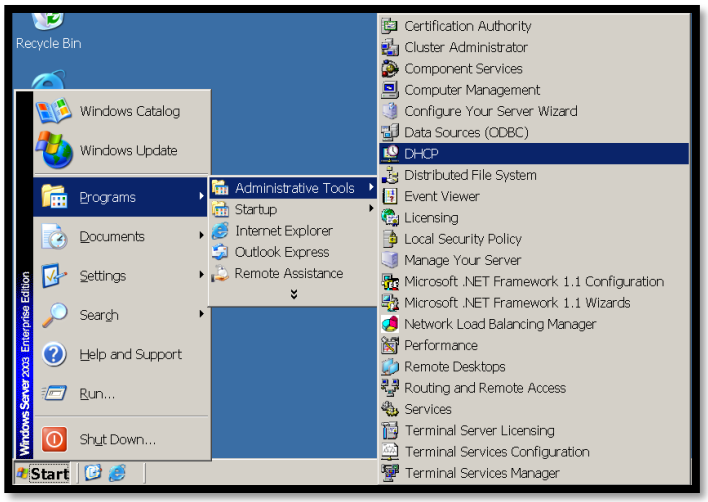


Cài đặt bổ sung dịch vụ DHCP: Control Panel → Add or Remove Programs → Add/Remove Windows Components → Networking Services → DHCP **(trước đó phải cài đặt đĩa W2K3 SP2 CD1.iso nếu không sẽ bị lỗi)** → OK → Finish

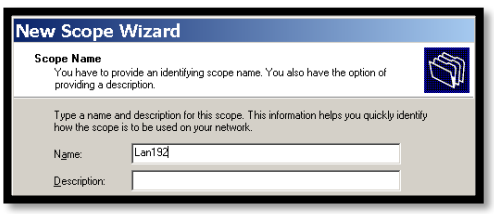


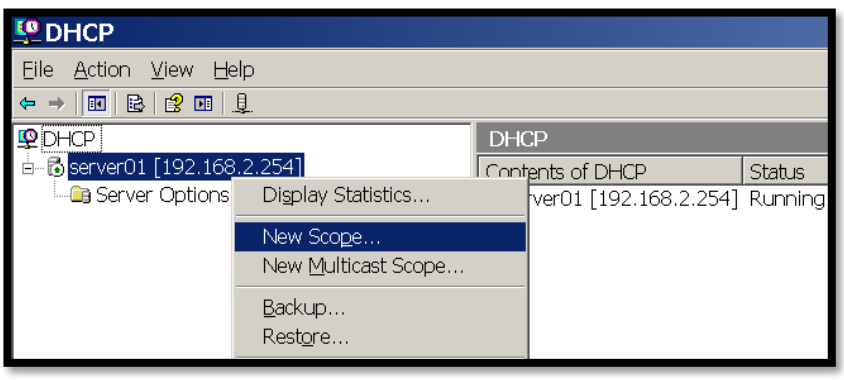
Cấu hình DHCP để cấp phát địa chỉ IP cho các máy:

Programs → Administrative Tools → DHCP



Trong màn hình của DHCP: DHCP → Chọn tên Server → New Scope → Next → Scope Name: Lan192



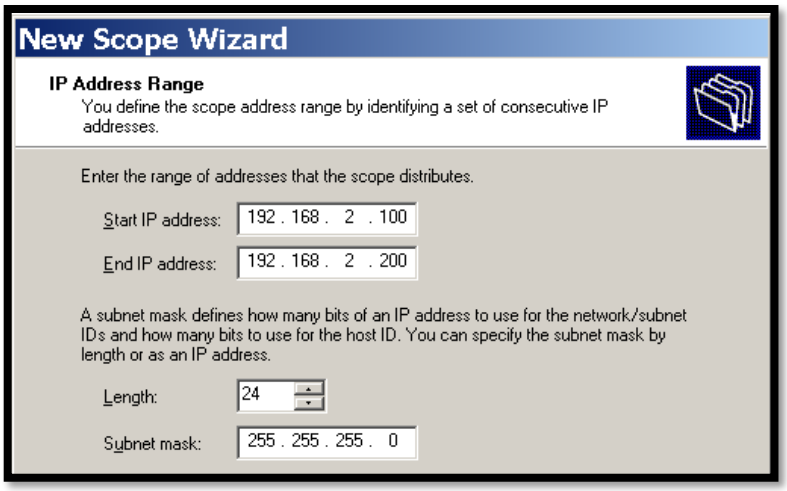


IP Address Range: chọn khoảng địa chỉ IP muốn được Server cấp phát tự động cho các Client

Start IP address: 192.168.2.100

End IP address: 192.168.2.200

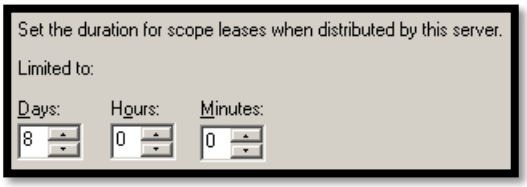
→ Next



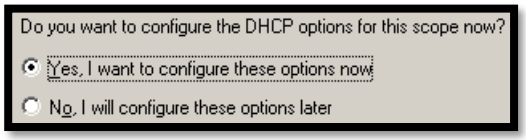
Add Exclusions: loại trừ khoảng địa chỉ IP không muốn Server cấp phát cho các Client

Nhập Start IP address và End IP address → Add → Next

Lease Duration: khoảng thời gian tối đa mà Client được gán địa chỉ IP đấy, sau thời gian chỉ định thì Client sẽ phải gửi yêu cầu cấp phát lại → Next

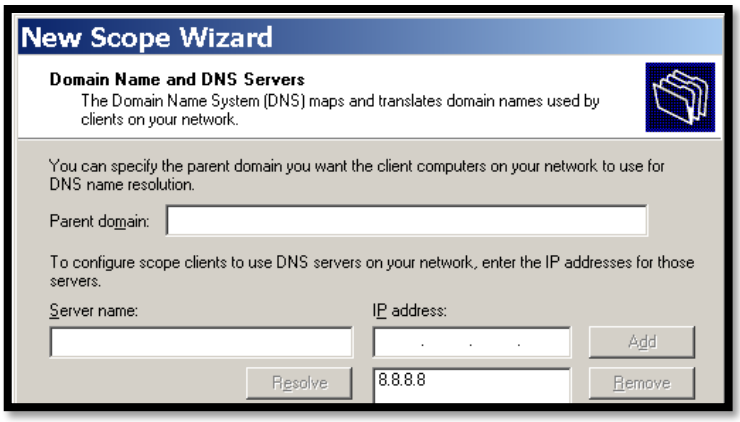


Configure DHCP Options: cài đặt thêm một số tuỳ chọn tích chọn "Yes, I want to configure these options now" → Next



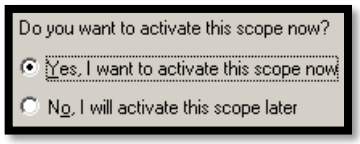
Router (Default Gateway): cấu hình địa chỉ IP gateway
IP address: 192.168.2.1 → Add → Next

Domain Name and DNS Servers: chọn DNS 8.8.8.8 của Google cho toàn bộ hệ thống mạng → Next



Bỏ qua **WINS Servers** → Next

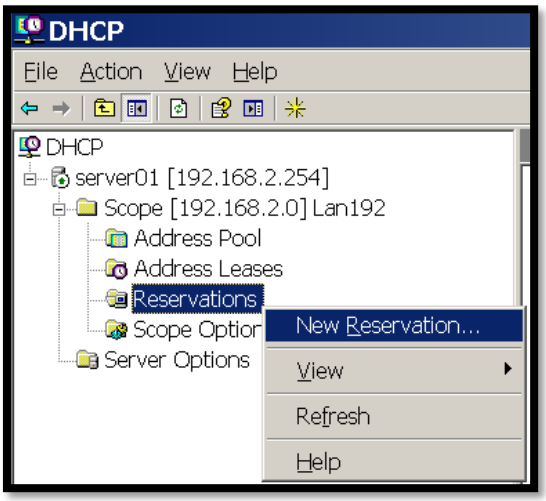
Chọn "Yes, I want to activate this scope now"
→ Next → Finish

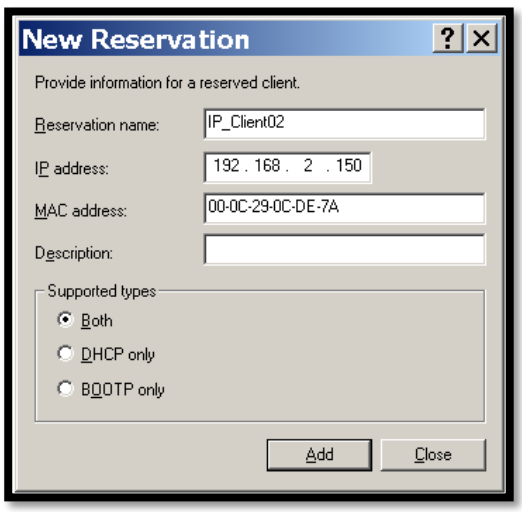


Cấp phát một địa chỉ IP tĩnh cho cụ thể một Client nào đó:
→ Ở Windows XP → CMD → ipconfig /all
→ Copy địa chỉ MAC của Client cần cấp IP tĩnh bằng cách chuột phải vào CMD → Mark
→ Bôi đen nội dung cần copy → Chuột phải

Cấu hình DHCP nâng cao: Administrative Tools → DHCP → Tên DHCP Server → Scope

- **Address Pool:** loại bỏ một hoặc một dãy địa IP ra khỏi vùng địa chỉ ban đầu
- **Address Leases:** quản lý thời gian có hiệu lực của địa chỉ IP được cấp tự động
- **Reservations:** gán một địa chỉ cố định cho một máy

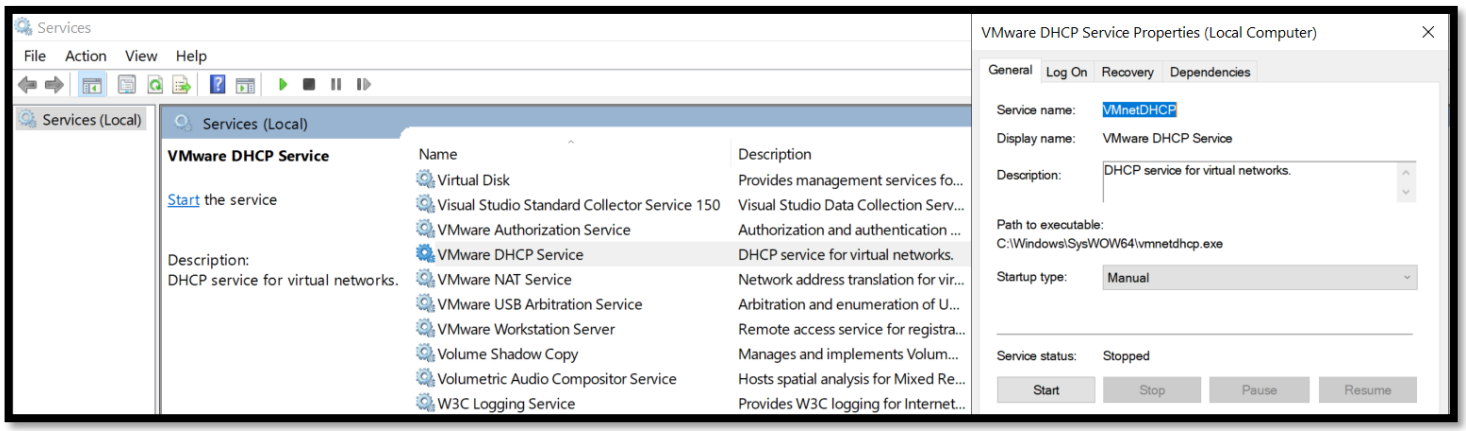




Muốn cấp phát địa chỉ IP tĩnh cho một Client (ví dụ: Client 02):
Chọn Reservations → New Reservation…

Hộp thoại New Reservation hiện ra
→ Reservation name: đặt tên tuỳ thích
→ IP address: chọn cụ thể địa chỉ IP muốn cấp phát tĩnh cho Client
→ MAC address: dán địa chỉ vật lý của máy Client vào
→ Add

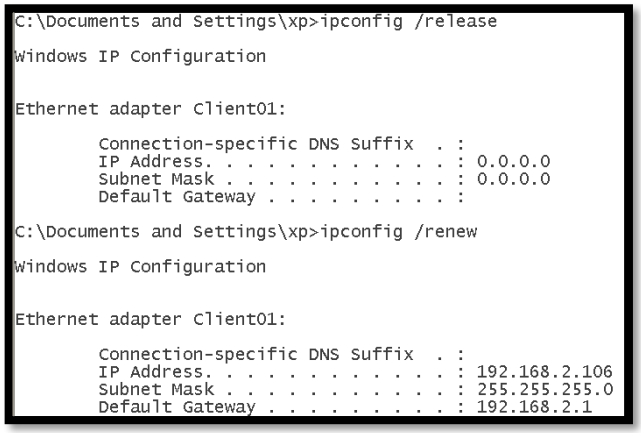
Tắt tính năng cấp DHCP tự động của VMware để tránh xung đột với DHCP Server:
Ở máy ngoài (Windows 10) gõ lệnh services.msc để mở Windows Services
→ VMware DHCP Service → Startup type: Manual → Stop → OK



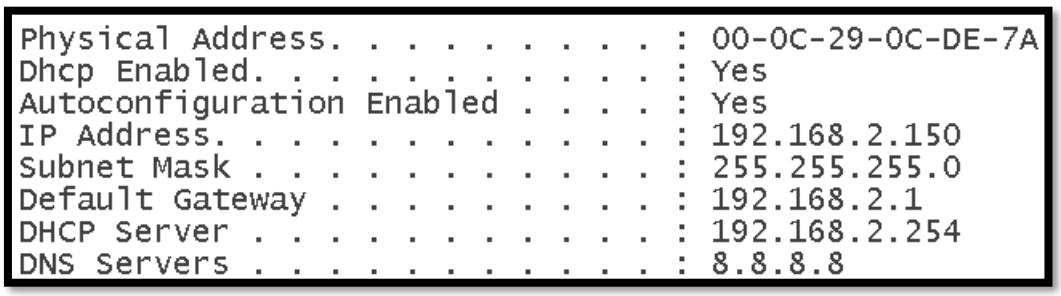
Windows XP: chọn card mạng giống với Server (VMnet1) và tích chọn "Obtain an IP address automatically" để nhận địa chỉ IP động do DHCP Server cấp phát

(Trước đó cần tắt tính năng cấp DHCP tự động của VMware để tránh xung đột với DHCP Server)

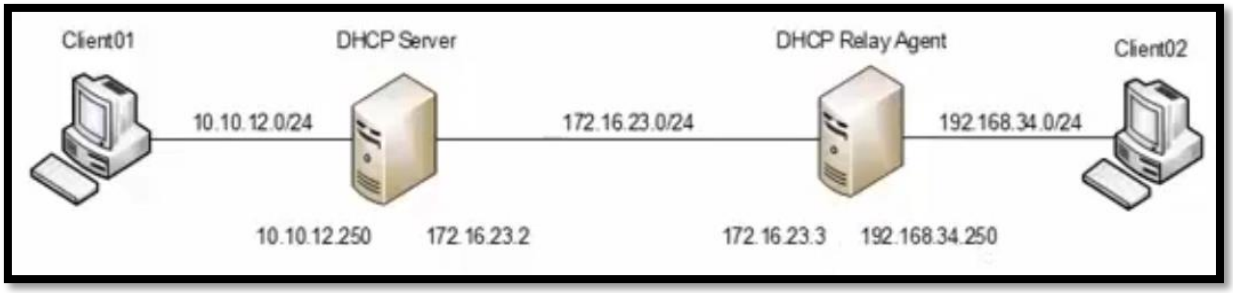
Mở cmd
→ "ipconfig /release" để giải phóng địa chỉ IP hiện tại
→ "ipconfig /renew" để nhận địa chỉ IP mới từ DHCP Server



Kiểm tra ở Client 02 đã được DHCP Server cấp phát IP tĩnh:



Lab 02 - Setup DHCP Relay Agent (2 Server - 2 NIC + 2 Client)



Windows Server 2003: cài đặt bổ sung dịch vụ DHCP trong Control Panel giống Lab01

DHCP Server (2 card mạng):

Int10:
- IP address: 10.10.12.250
- Subnet Mask: 255.255.255.0

Ext172:
- IP address: 172.16.23.2
- Subnet Mask: 255.255.255.0

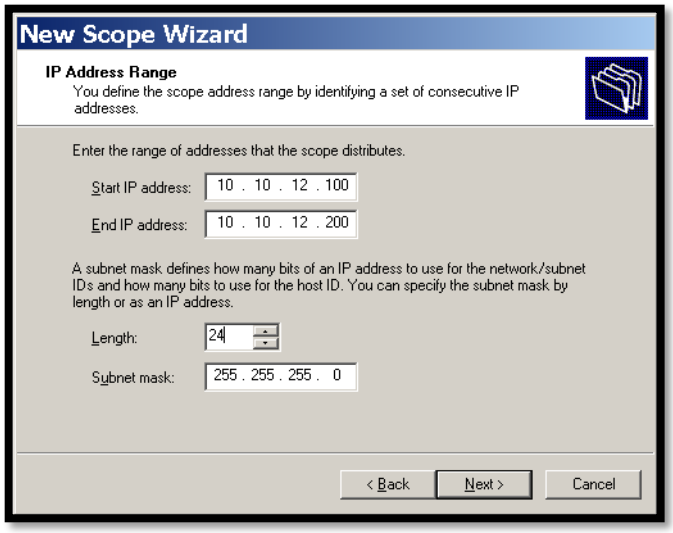
DHCP Relay Agent (2 card mạng):

Int192:
- IP address: 192.168.34.250
- Subnet Mask: 255.255.255.0

Ext172:
- IP address: 172.16.23.3

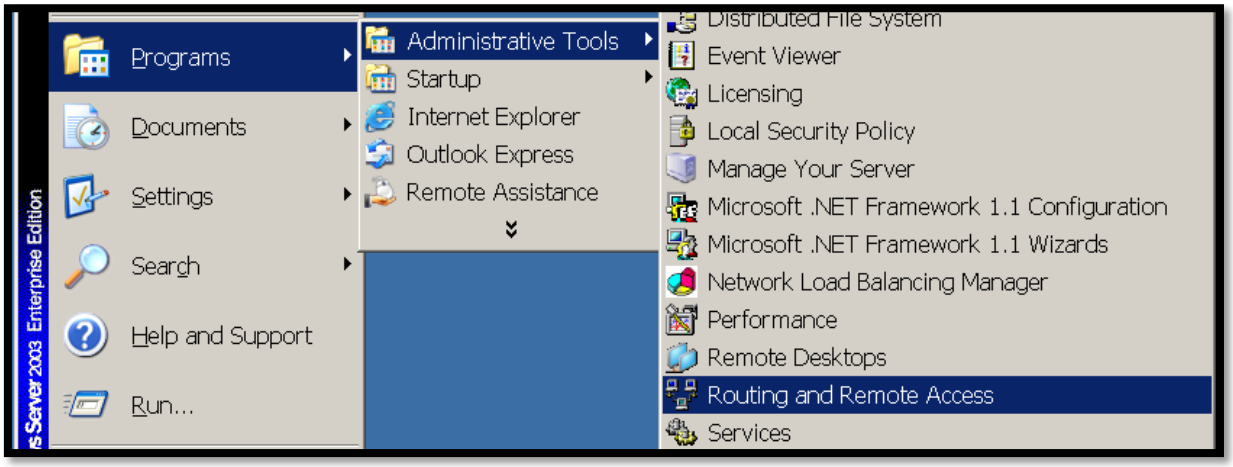
Subnet Mask: 255.255.255.0

DHCP Server: tạo các scope **Lan10**, **Lan192** như lab01, chú ý subnet mask là 255.255.255.0 (Length: 24)

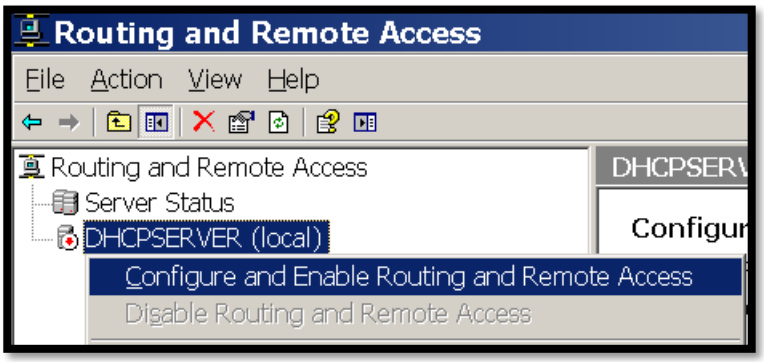


Cấu hình RIP cho đường mạng có thể giao tiếp với nhau giữa DHCP Server và DHCP Relay Agent (vào services.msc tắt tường lửa trước khi bắt đầu cấu hình):

DHCP Server: Programs → Administrative Tools → Routing and Remote Access

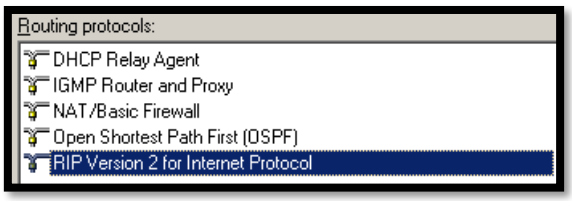


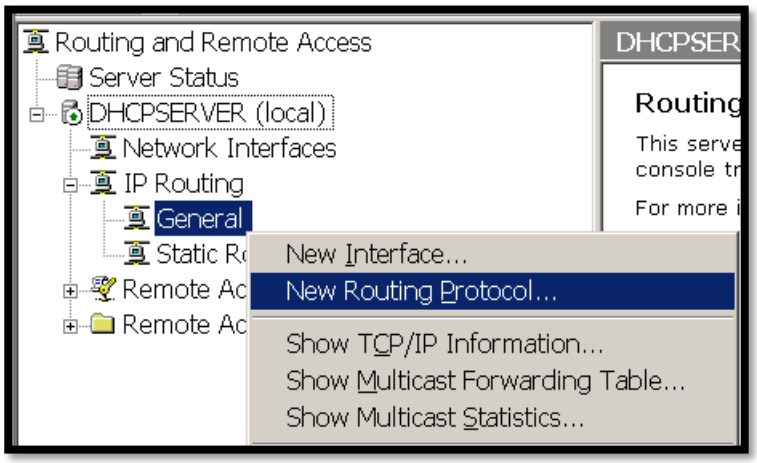
Routing and Remote Access
→ Chọn tên DHCP Server (local)
→ Configure and Enable Routing and Remote Access
→ Next → Custon configuration



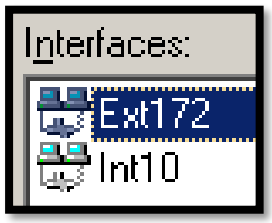
→ Next → Lan Routing → Next → Finish
→ Hộp thoại cảnh báo khởi động dịch vụ hiện ra → Yes

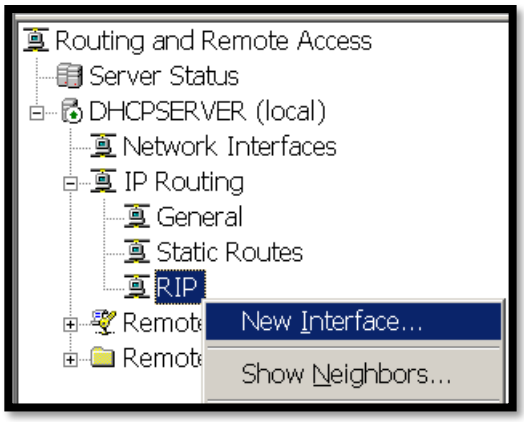
Chọn tên DHCP Server (local)
→ IP Routing
→ General
→ New Routing Protocol…
→ RIP Version 2 for Internet Protocol





Chọn tên DHCP Server (local)
→ IP Routing
→ RIP
→ New Interface
→ Chọn lần lượt card mạng Ext172 và Int10
→ OK → OK (không cấu hình thêm gì)
→ Chọn tên DHCP Server (local)
→ All Tasks → Restart

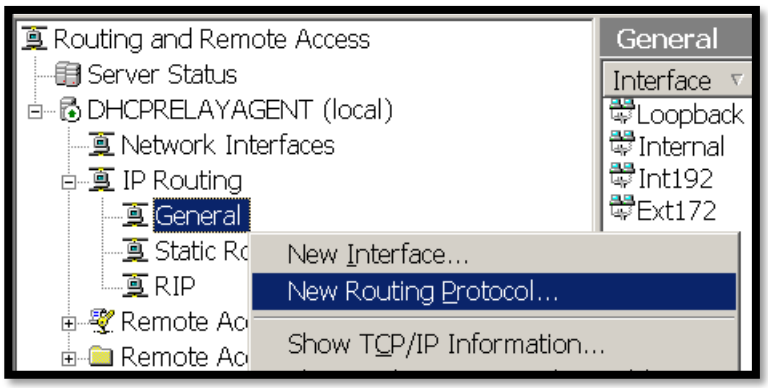




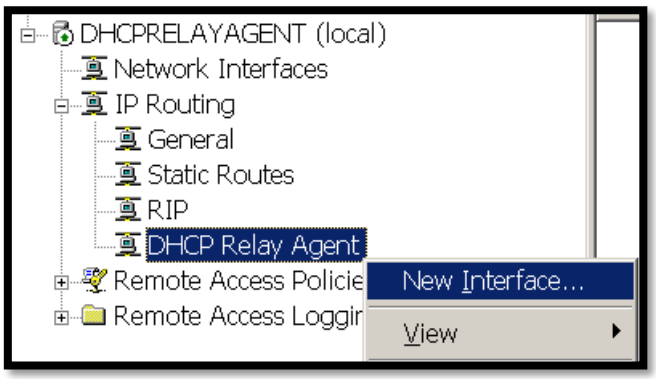
DHCP Relay Agent: tương tự DHCP Server
- Tắt tường lửa
- Vào Routing and Remote Access → Cấu hình và bật Routing and Remote Access
→ Thêm giao thức RIP Version 2 → Add lần lượt card mạng Ext172 và Int192 → Restart

Cấu hình DHCP Relay Agent trên máy DHCP Relay Agent:

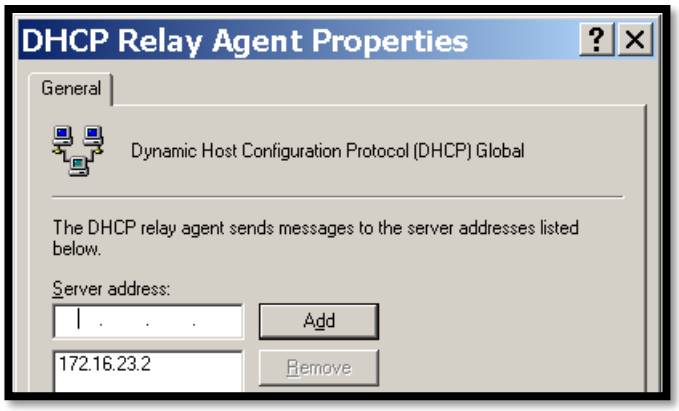
Tên DHCP Relay Agent (local)
→ IP Routing
→ General
→ New Routing Protocol…
→ Routing protocols: DHCP Relay Agent



Tên DHCP Relay Agent (local)
→ IP Routing
→ DHCP Relay Agent
→ New Interface…
→ Chỉ chọn card mạng Int192
→ OK → OK

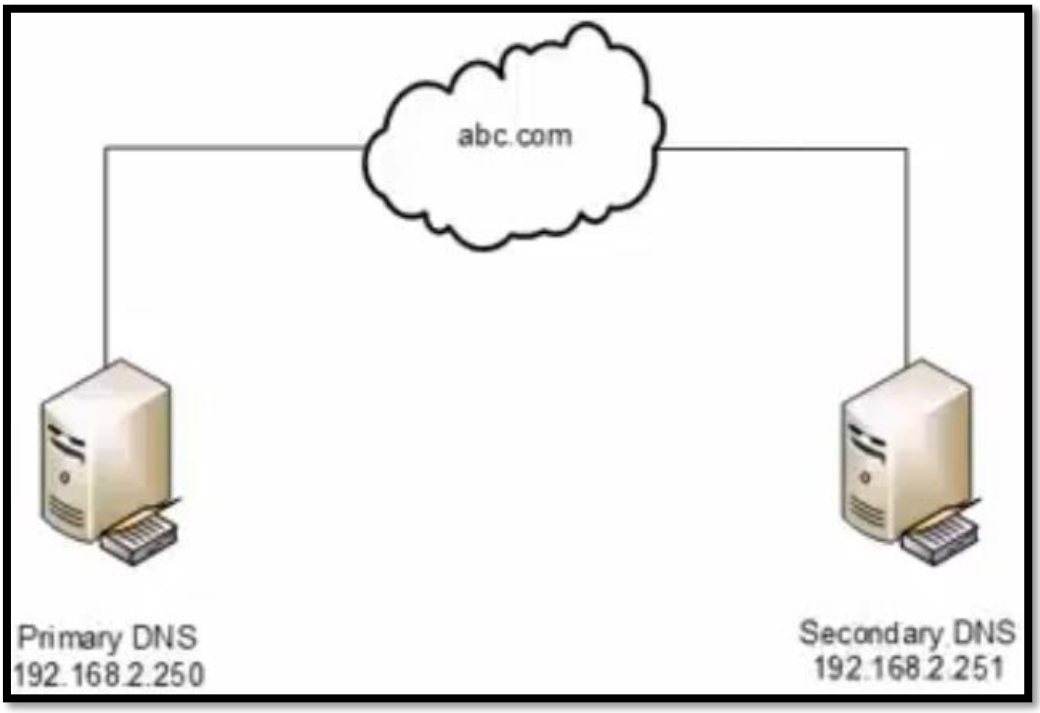


DHCP Relay Agent
→ Properties
→ Nhập địa chỉ IP của DHCP Server (172.16.23.2)
→ Add
→ OK
→ Restart



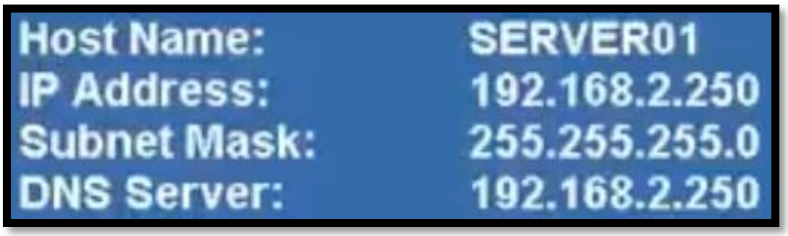
Windows XP: ipconfig /release → ipconfig /renew

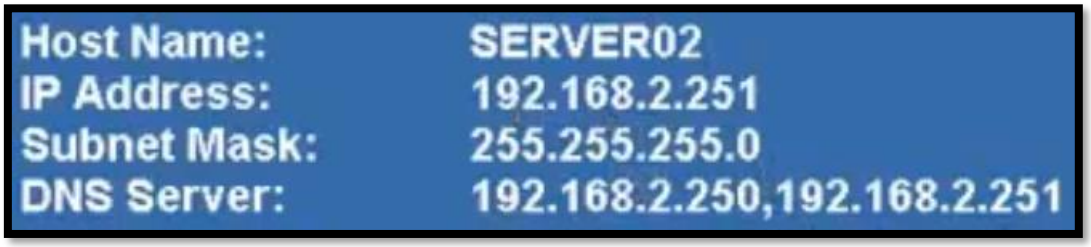
Lab 03 - Setup Primary DNS & Secondary DNS (2 Server - 1 NIC + 1 Client)

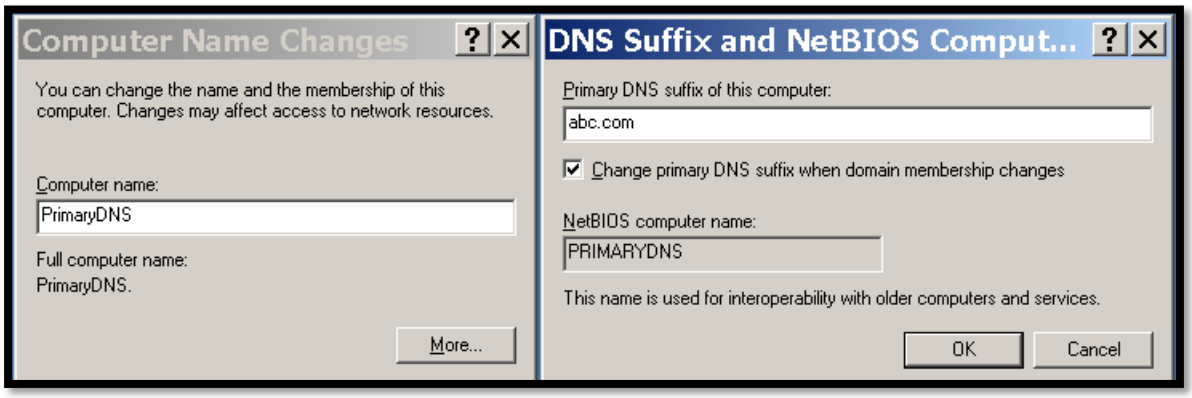


Windows Server 2003:

Cấu hình địa chỉ IP, trỏ IP cho DNS Server, cài đặt bổ sung dịch vụ DNS



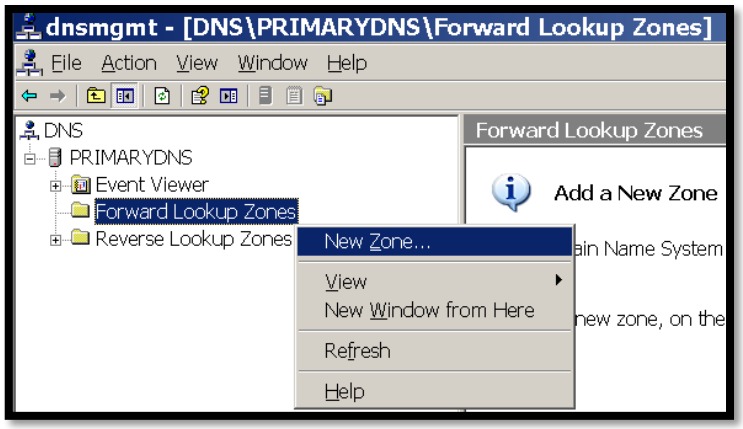




Cấu hình DNS phân giải trên máy Primary DNS:

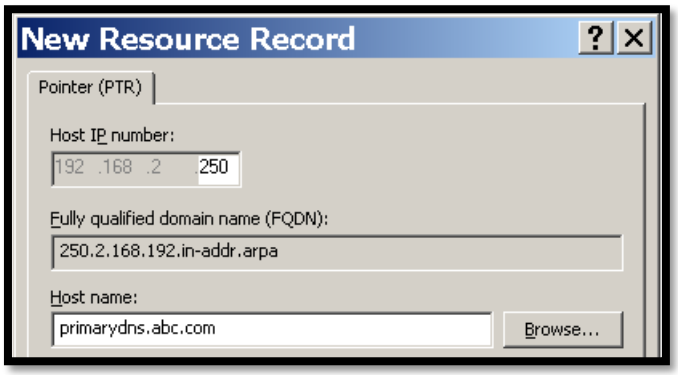
Administrative Tools → DNS

Forward Lookup Zones → New Zone…
→ Next → Primary zone → Next
→ Zone name: abc.com → Next → Next
→ Next → Finish



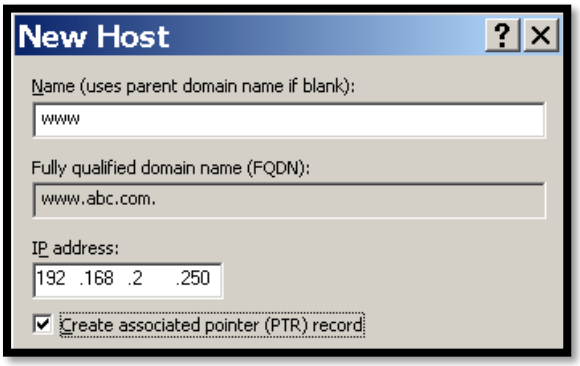
Reverse Lookup Zones → New Zone…
→ Next → Primary zone → Next
→ Network ID: 192.168.2 (vì đây là địa chỉ mạng lớp C, nếu là lớp B thì sẽ chỉ nhập 172.16) → Next → Next → Next → Finish

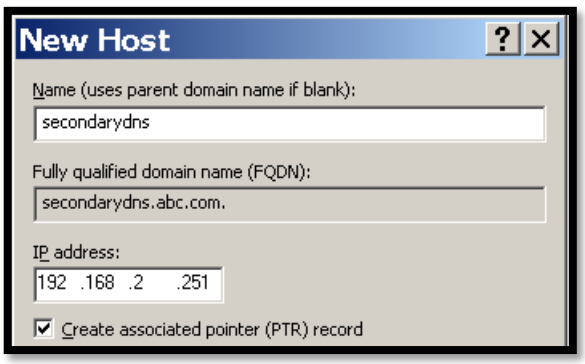
Reverse Lookup Zones → 192.168.2.x Subnet
→ New Pointer (PTR)…
→ Nhập Host IP của Primary DNS vào
→ Host name → Browse…
→ Chọn tên của Primary DNS



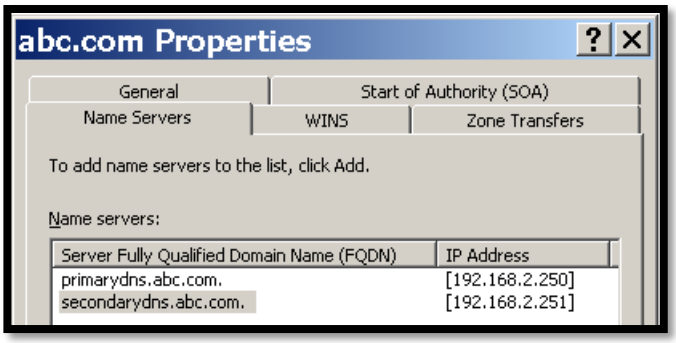
Tạo thêm một số Host ở Forward Lookup Zones để kiểm tra (ví dụ: www.abc.com).

Cấu hình thông tin của máy Secondary DNS tại Forward Lookup Zones của Primary DNS:



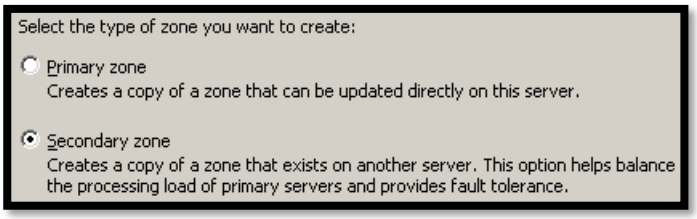


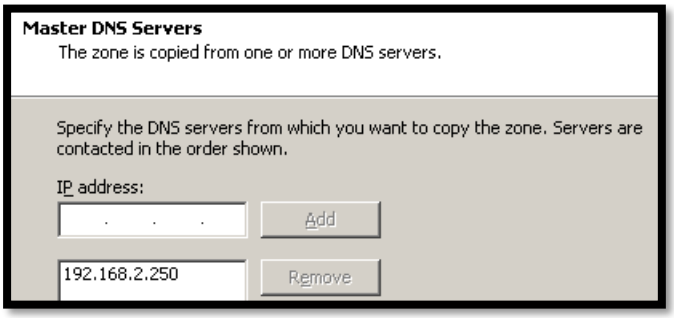
Forward Lookup Zones → abc.com
→ Properties → Name Servers → Add
→ Nhập địa chỉ đầy đủ của Secondary DNS: secondarydns.abc.com
→ Resolve → OK → OK



Cấu hình DNS phân giải trên máy Secondary DNS:

Tương tự Primary DNS
Chọn loại zone: Secondary zone
Master DNS Servers: nhập địa chỉ của Primary DNS





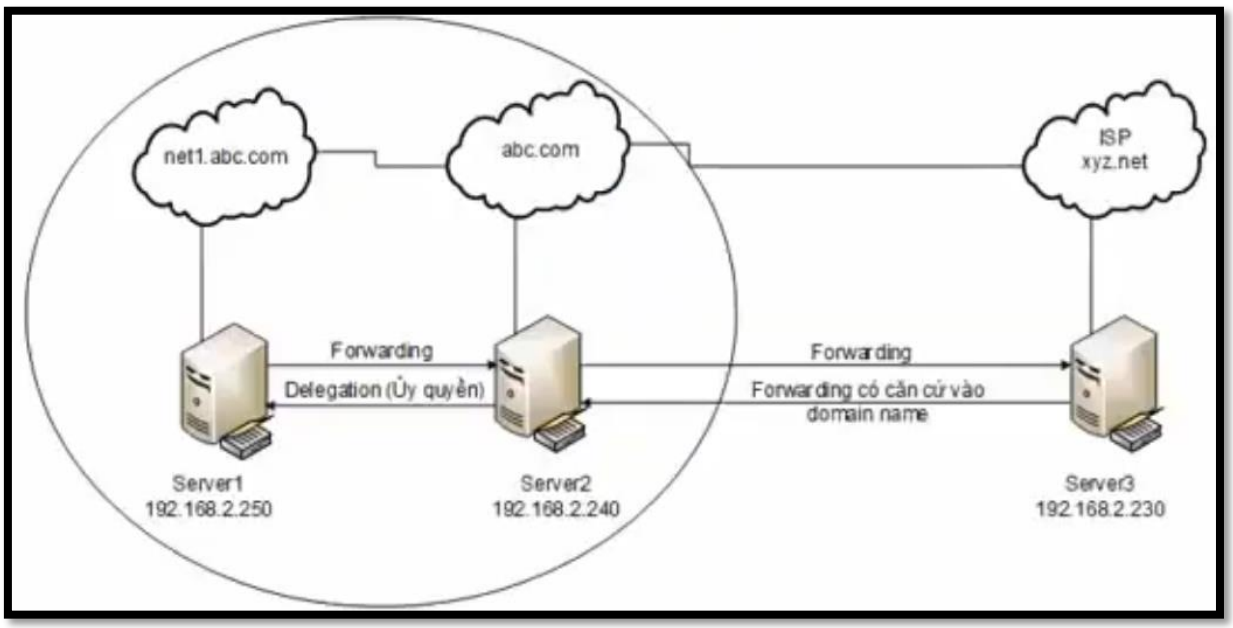
(Chọn Transfer from Master nếu sau khi đã cấu hình xong mà ở Forward Lookup Zones và Reverse Lookup Zones đều hiện dấu x đỏ)

Windows XP:

Cấu hình cùng card mạng và lớp mạng với 2 DNS Server, trở DNS đến cả 2 DNS Server


```
C:\Documents and Settings\xp>nslookup
Default Server:  www.abc.com
Address:  192.168.2.250

> 192.168.2.250
Server:  www.abc.com
Address:  192.168.2.250

Name:    primarydns.abc.com
Address:  192.168.2.250

> 192.168.2.251
Server:  www.abc.com
Address:  192.168.2.250

Name:    secondarydns.abc.com
Address:  192.168.2.251

> www.abc.com
Server:  www.abc.com
Address:  192.168.2.250

Name:    www.abc.com
Address:  192.168.2.250
```

Lab 04 - DNS Server on 3 Server (3 Server - 1 NIC)



(Dựa vào sơ đồ mạng để đặt tên cho các server, cấu hình địa chỉ IP và DNS)

Host Name:	SERVER01
IP Address:	192.168.2.250
Subnet Mask:	255.255.255.0
DNS Server:	192.168.2.250

Host Name:	SERVER02
IP Address:	192.168.2.240
Subnet Mask:	255.255.255.0
DNS Server:	192.168.2.240

Host Name:	SERVER03
IP Address:	192.168.2.230
Subnet Mask:	255.255.255.0
DNS Server:	192.168.2.230

Server 01:

Cấu hình Forward Lookup Zones và Reverse Lookup Zones tương tự Primary DNS của Lab02

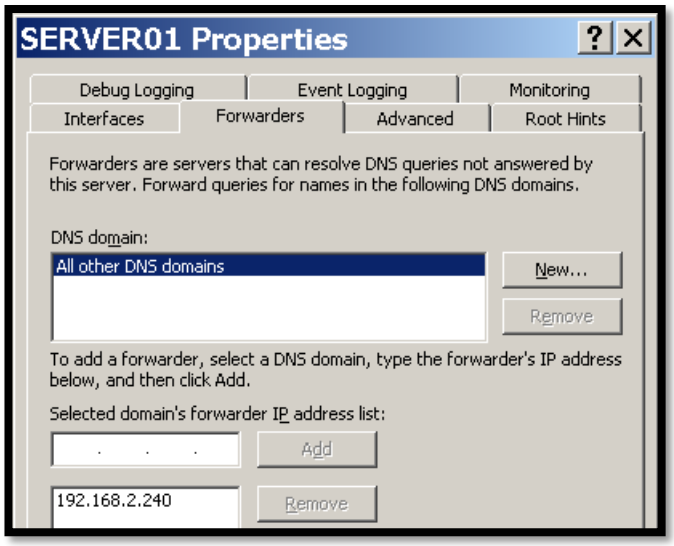
Tại Forward Lookup Zones, tạo thêm các Host để kiểm tra:

→ New Mail Exchanger (MX) → mail.net1.abc.com

→ New Alias (CNAME) → www.net1.abc.com

Forwarding cho Server01 sang Server02:

Server01 → Properties → Tab Forwarders → Nhập địa chỉ của Server 02 (giống trong sơ đồ mạng) → Add → OK



Server 02:

Cấu hình Forward Lookup Zones và Reverse Lookup Zones tương tự Server 01

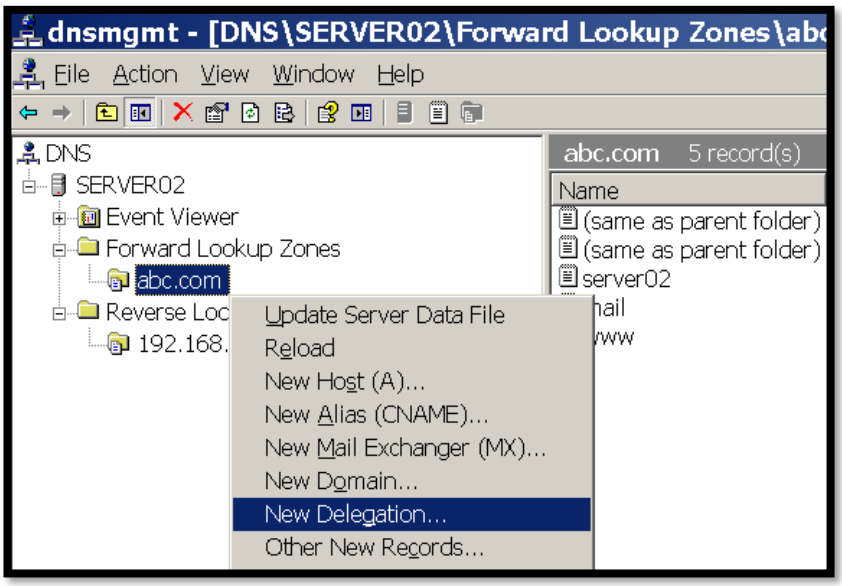
Tại Forward Lookup Zones, tạo thêm các Host để kiểm tra:

→ New Mail Exchanger (MX)

→ mail.abc.com

→ New Alias (CNAME)

→ www.abc.com



Uỷ quyền từ Server02 sang Server01:

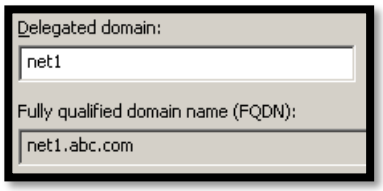
Forward Lookup Zones

→ abc.com → New Delegation… → Next

→ Delegated domain: net1 (giống trong sơ đồ mạng) → Next

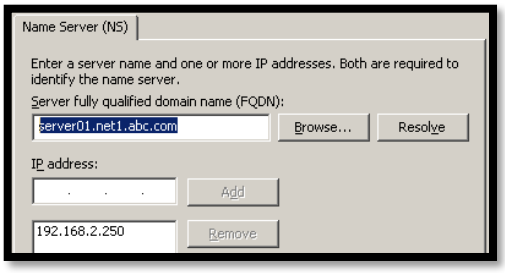
→ Add → Nhập tên của Server01: server01.net1.abc.com

→ IP address → Nhập địa chỉ IP của Server01: 192.168.2.250



Forwarding cho Server02 sang Server03:

Forward Lookup Zones → Server02 → Properties → Tab Forwarders → Nhập địa chỉ của Server 03 (giống trong sơ đồ mạng) → Add → OK



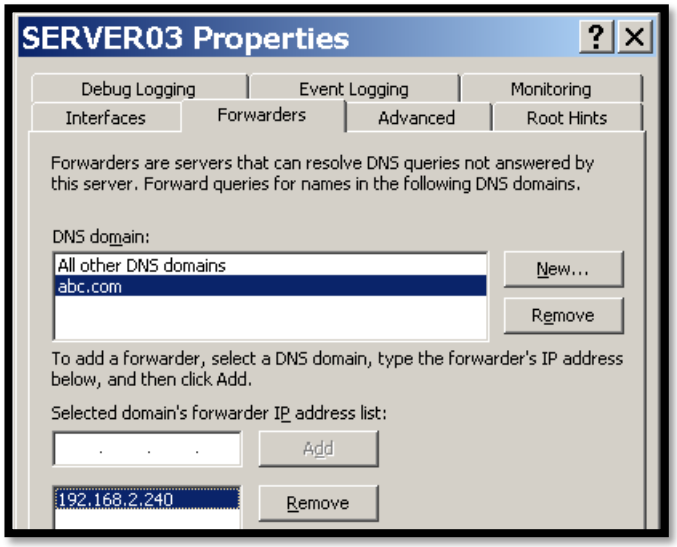
Server 03:

Cấu hình Forward Lookup Zones và Reverse Lookup Zones tương tự Server 01 và Server 02

Tại Forward Lookup Zones, tạo thêm các Host để kiểm tra:

→ New Mail Exchanger (MX) → mail.abc.com

→ New Alias (CNAME) → www.abc.com



Forwarding cho Server03 sang Server02:

Forward Lookup Zones → Server03 → Properties → Tab Forwarders →

→ Tại DNS domain → New… → Nhập domain: abc.com → OK

→ IP address: Nhập địa chỉ của Server 02 (giống trong sơ đồ mạng) → Add → OK

Kiểm tra kết quả:

Server01:

```
C:\Documents and Settings\Administrator>ping server02.abc.com

Pinging server02.abc.com [192.168.2.240] with 32 bytes of data:

Reply from 192.168.2.240: bytes=32 time=1ms TTL=128
Reply from 192.168.2.240: bytes=32 time<1ms TTL=128
Reply from 192.168.2.240: bytes=32 time<1ms TTL=128
Reply from 192.168.2.240: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.2.240:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Documents and Settings\Administrator>ping server03.xyz.net

Pinging server03.xyz.net [192.168.2.230] with 32 bytes of data:

Reply from 192.168.2.230: bytes=32 time<1ms TTL=128
Reply from 192.168.2.230: bytes=32 time<1ms TTL=128
Reply from 192.168.2.230: bytes=32 time<1ms TTL=128
Reply from 192.168.2.230: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.2.230:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

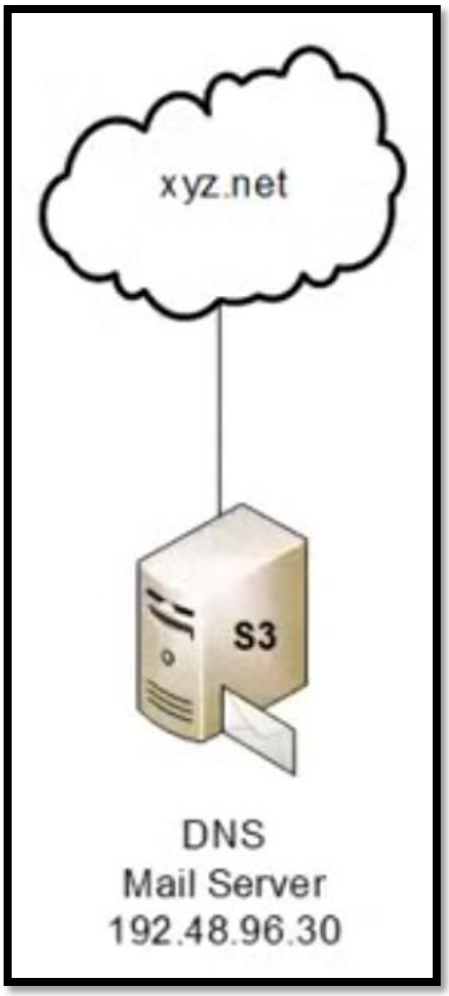
Server02:

```
C:\Documents and Settings\Administrator>ping server01.net1.abc.com

Pinging server01.net1.abc.com [192.168.2.250] with 32 bytes of data:

Reply from 192.168.2.250: bytes=32 time<1ms TTL=128
Reply from 192.168.2.250: bytes=32 time<1ms TTL=128
Reply from 192.168.2.250: bytes=32 time<1ms TTL=128
Reply from 192.168.2.250: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.2.250:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Documents and Settings\Administrator>ping server03.xyz.net

Pinging server03.xyz.net [192.168.2.230] with 32 bytes of data:

Reply from 192.168.2.230: bytes=32 time<1ms TTL=128
Reply from 192.168.2.230: bytes=32 time<1ms TTL=128
Reply from 192.168.2.230: bytes=32 time=1ms TTL=128
Reply from 192.168.2.230: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.2.230:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Server03:

```
C:\Documents and Settings\Administrator>ping server01.net1.abc.com

Pinging server01.net1.abc.com [192.168.2.250] with 32 bytes of data:

Reply from 192.168.2.250: bytes=32 time<1ms TTL=128
Reply from 192.168.2.250: bytes=32 time<1ms TTL=128
Reply from 192.168.2.250: bytes=32 time<1ms TTL=128
Reply from 192.168.2.250: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.2.250:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Documents and Settings\Administrator>ping server02.abc.com

Pinging server02.abc.com [192.168.2.240] with 32 bytes of data:

Reply from 192.168.2.240: bytes=32 time=1ms TTL=128
Reply from 192.168.2.240: bytes=32 time<1ms TTL=128
Reply from 192.168.2.240: bytes=32 time=1ms TTL=128
Reply from 192.168.2.240: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.2.240:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

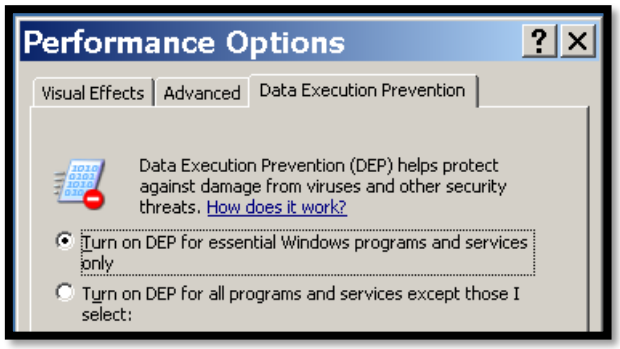
Lab 05 - Install, configure MDaemon Mail Server



(Trỏ IP cho DNS Server)

Tắt chức năng Data Execution Prevention (DEP) cho toàn bộ phần mềm (giới hạn):

My Computer → Properties → Tab Advance
→ Tab Data Execution Prevention



Tại tab Computer Name → Change → More → xyz.net

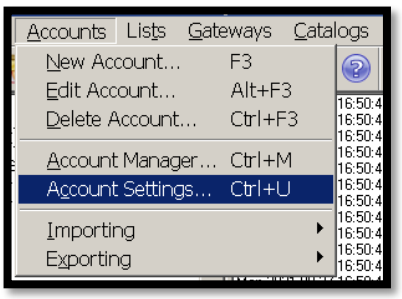
Cài đặt bổ sung dịch vụ DNS, cấu hình DNS phân giải thuận + phân giải nghịch:

Administrative Tools → DNS
Forward Lookup Zones → Zone name: xyz.net → New Mail Exchanger (MX)
Reverse Lookup Zones → Network ID: 192.48.96 → New Pointer (PTR)

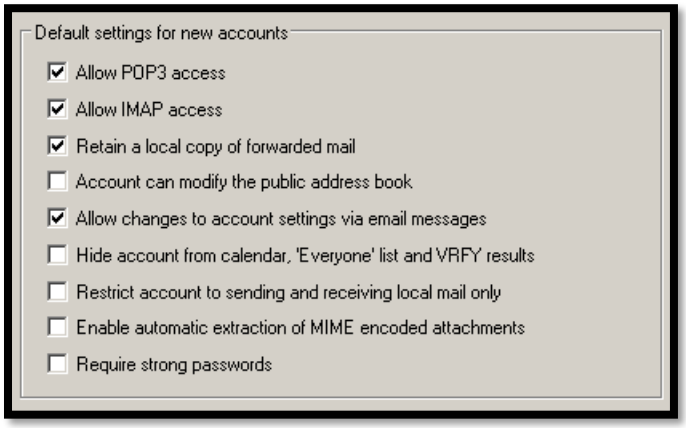
Cài đặt Mail MDaemon v10: điền domain xyz.net, tài khoản admin | 123456

Tắt yêu cầu mật khẩu phức tạp:

Accounts → Account Settings

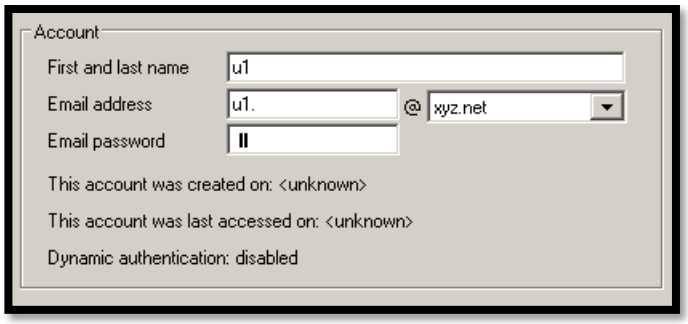


→ Bỏ chọn “Require strong passwords”

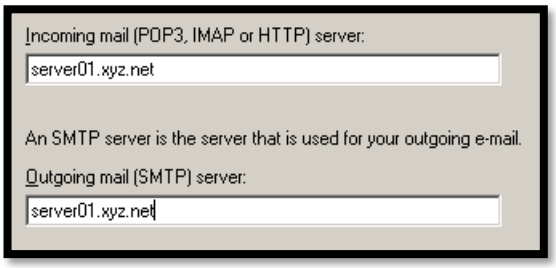


(Mail Mdaemon v9.6.5:
Setup
→ Miscellaneous options)
→ Tab Miscellaneous
→ Bỏ chọn “Require strong passwords”)

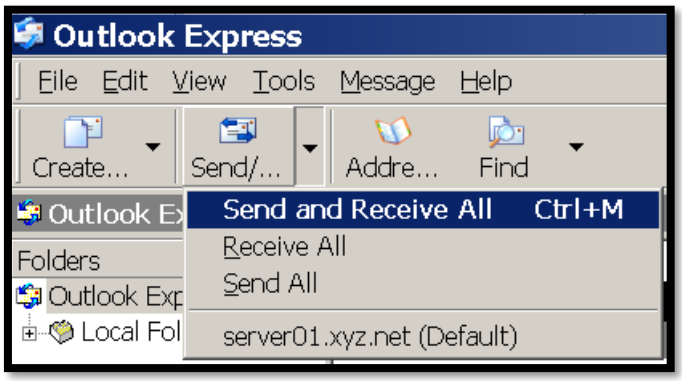
Tạo mailbox để test lại:
Accounts → Account Manager → New
→ Điền thông tin vào khung Account
→ Tạo tài khoản u1



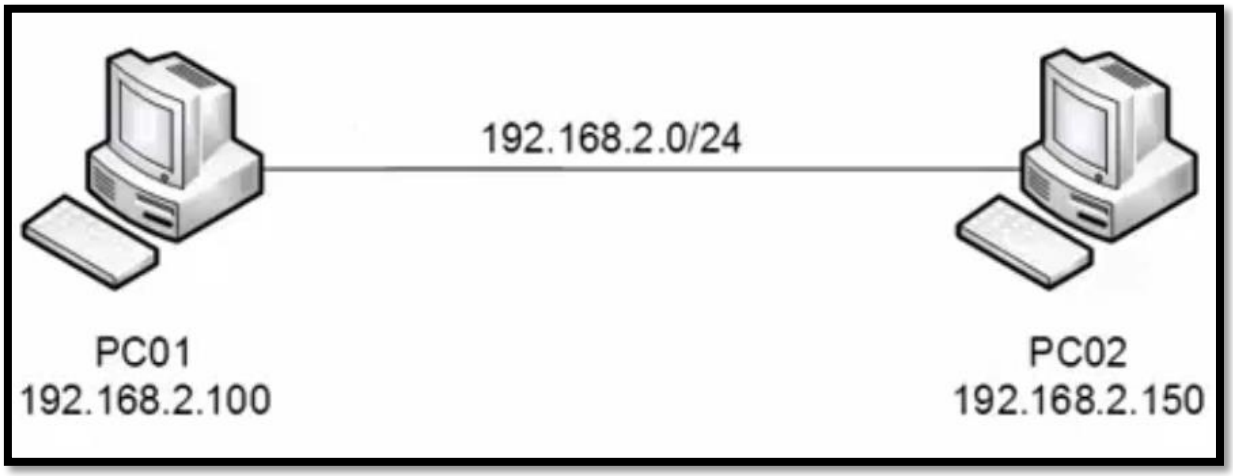
Mở Outlook Express:
Display name: u1
E-mail address: u1@xyz.net
Incoming mail và Outgoing mail: server01.xyz.net
Nhập tài khoản u1 đã tạo ở Mail MDaemon



Nhận thư chào mừng: click “Send and Receive All”



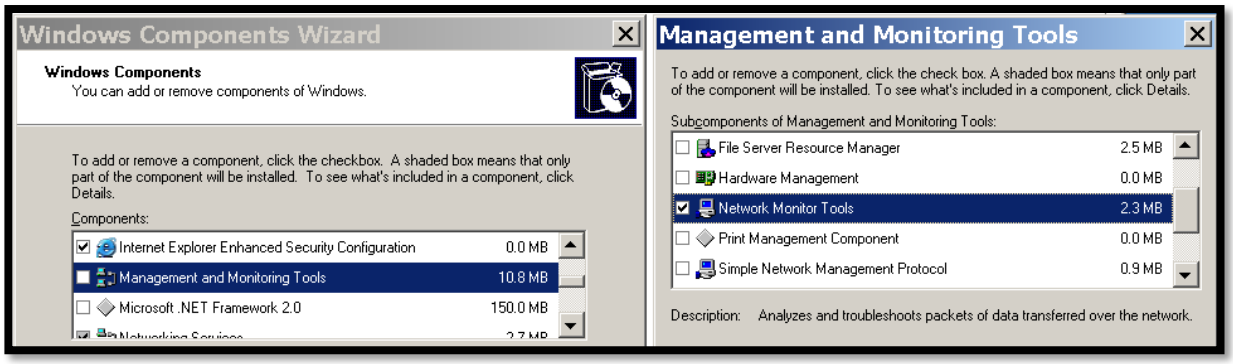
Lab 06 - Configure IPSEC on Workgroup (2 Server - 1 NIC)



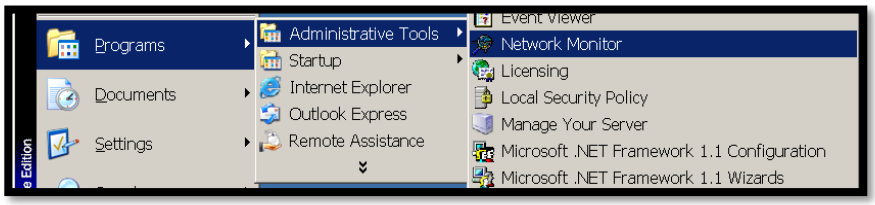
- **Chuẩn bị:**

Server01: Cài đặt bổ sung dịch vụ Network Monitor:

Control Panel → Add or Remove Programs → Add/Remove Windows Components → Management and Monitoring Tools → Network Monitor Tools → OK → Next → Finish

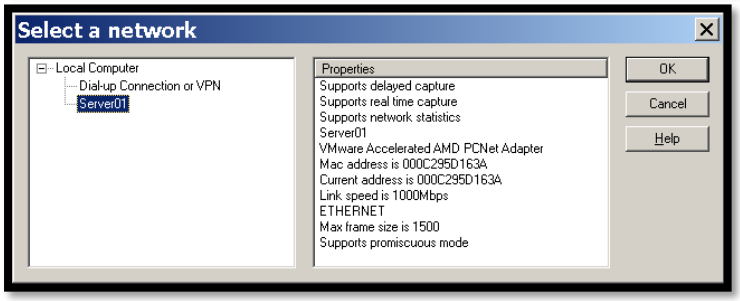


Programs → Administrative Tools → Network Monitor



Hộp thoại hiện ra → OK

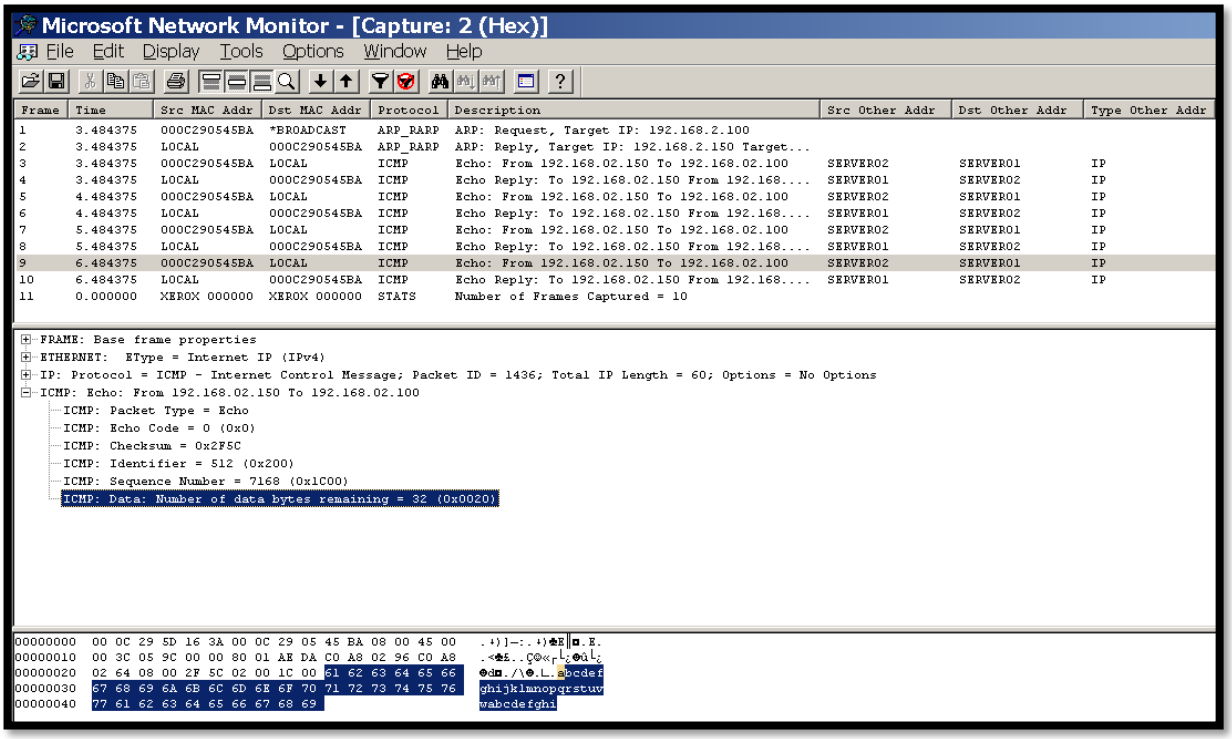
Select a network → Local Computer → Tên server (server01) → OK → Nhấn nút "Start Capture"



Server02: Ping qua Server01 để Server01 nhận chuỗi thông điệp

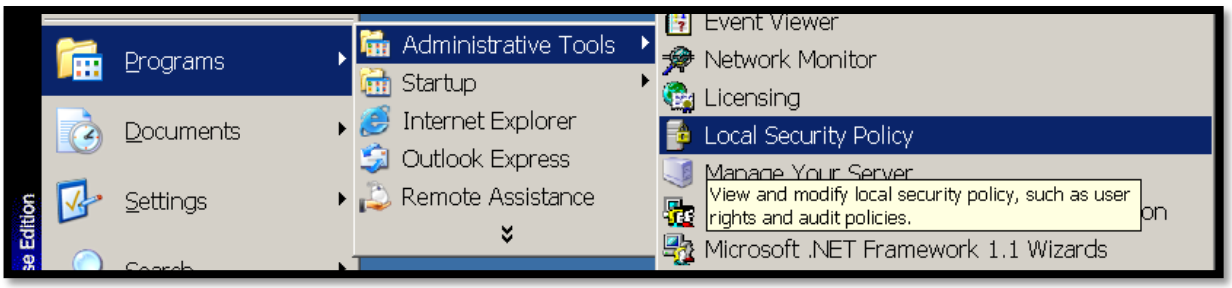
Server01: Sau khi dùng Server02 ping xong, trở lại Server01 → Ấn nút "Stop and View Capture"

Xem kết quả, thông điệp chưa được mã hoá, chuỗi "abc…fghi" vẫn được giữ nguyên

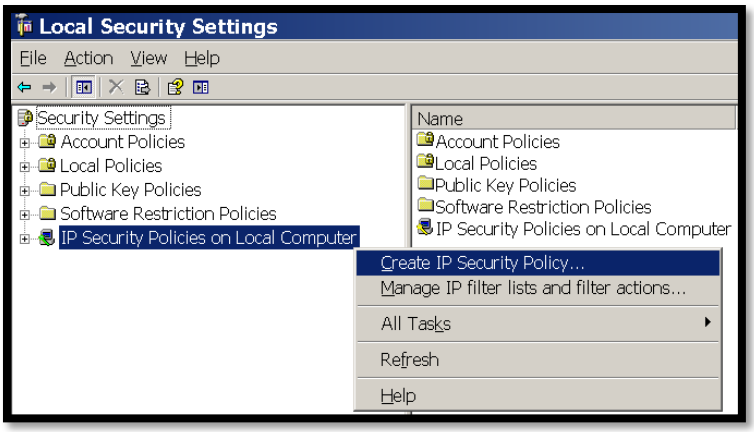


- **Cài đặt IP Sec:**

Server01: Programs → Administrative Tools → Local Security Policy



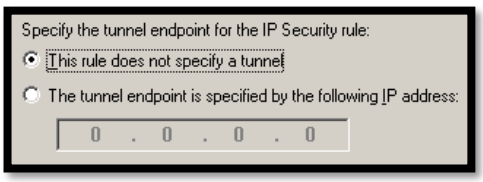
Local Secutiry Settings
→ IP Security Policies on Local Computer
→ Create IP Security Policy…



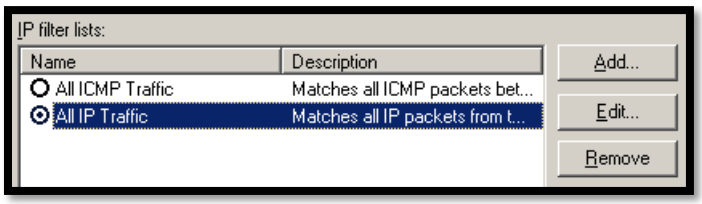
Hộp thoại cài đặt hiện ra
→ Next → Name: đặt tên tuỳ thích (ví dụ: No ping)
→ Bỏ chọn "Active the default response rule" → Next → Finish

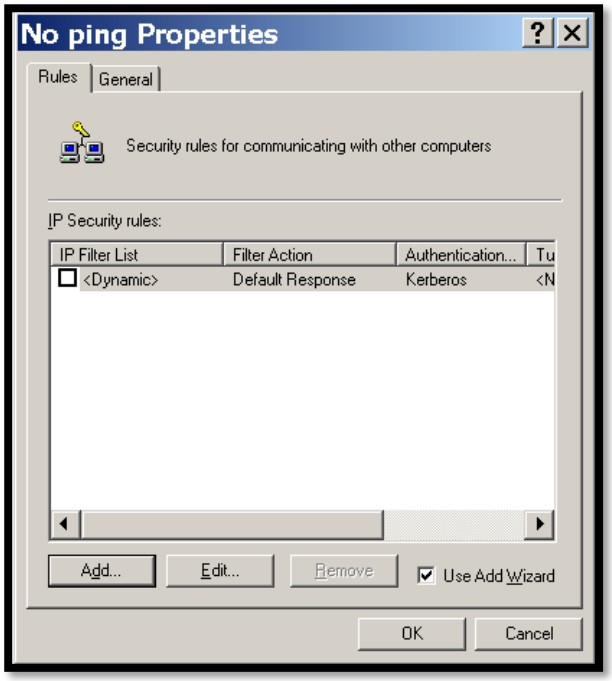
Hộp thoại Proterties hiện ra → Add

Hộp thoại Security Rule hiện ra → Next
→ Tích chọn "This rule does not specify a tunnel"

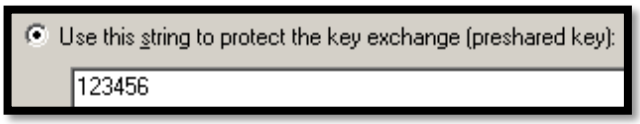


→ Next
→ Network type: Local area network (LAN)
→ Next → Tích chọn "All IP Traffic"



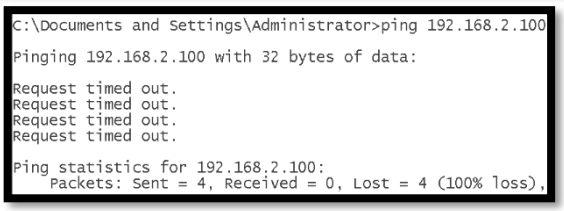


→ Next → Tích chọn "Require Security" → Next
→ Tích chọn ô "Use this string to protect the key exchange (preshared key)"
→ Nhập khoá tuỳ thích → Next → Finish → OK



IP Security Policies on Local Computer
→ Chính sách vừa tạo (No ping)
→ Assign

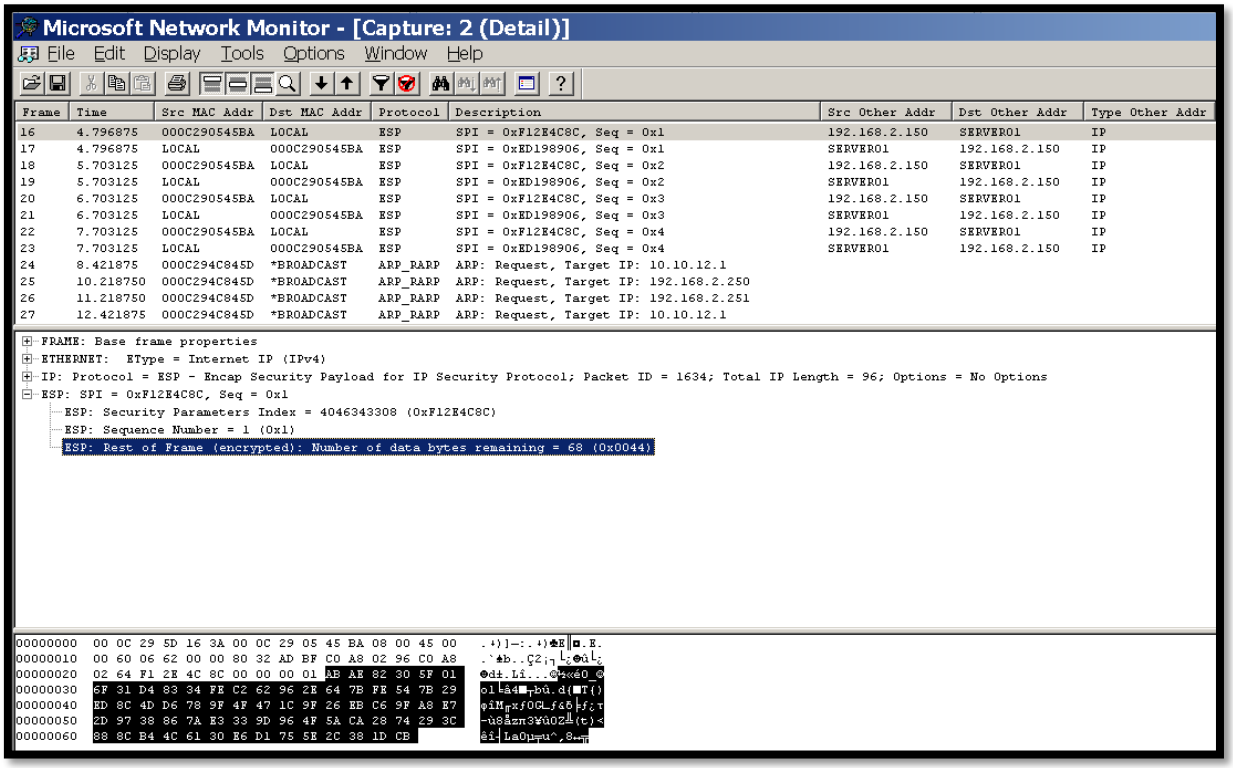
Server02: thử ping cho Server01 sẽ thấy Server02 không thể ping cho Server01 được nữa



Cấu hình IP Sec cho Server02 tương tự Server01 → Assign → Tiến hành ping lại cho Server01

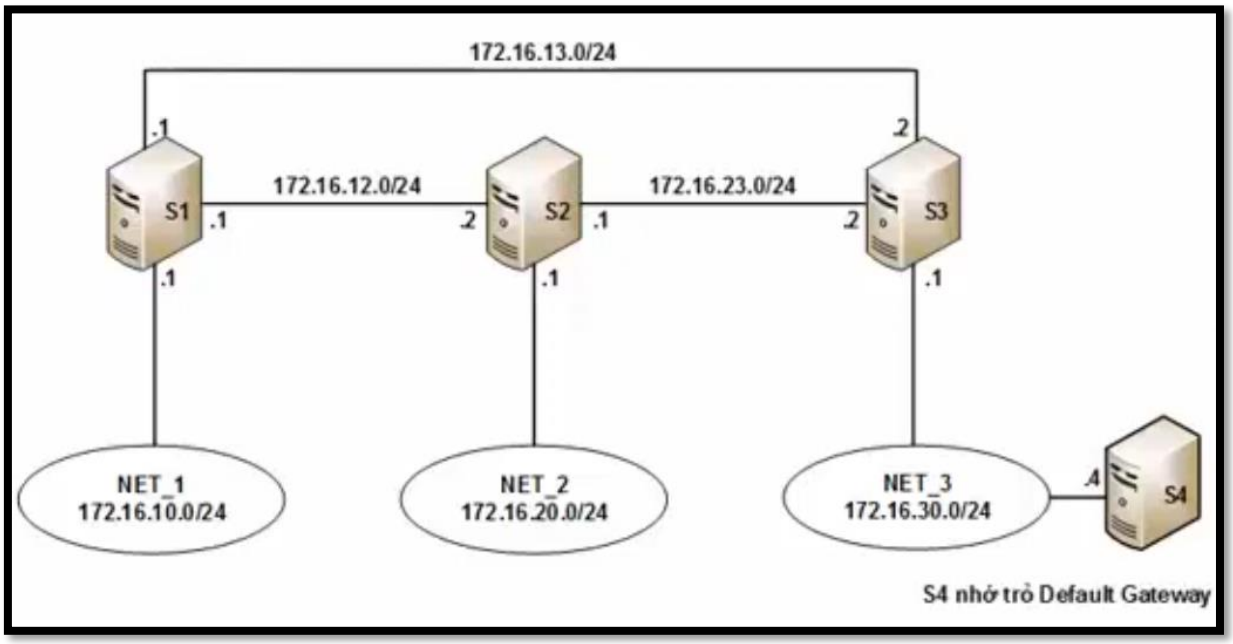
```
C:\Documents and Settings\Administrator>ping 192.168.2.100

Pinging 192.168.2.100 with 32 bytes of data:

Negotiating IP Security.
Reply from 192.168.2.100: bytes=32 time<1ms TTL=128
Reply from 192.168.2.100: bytes=32 time<1ms TTL=128
Reply from 192.168.2.100: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.2.100:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Sang Server01 kiểm tra bằng phần mềm Network Monitor sẽ thấy thông điệp đã được mã hoá



Lab 07 - Install, configure MDaemon on 3 Server

Lab 08 - Configure Dynamic Route (4 Server - 3 NIC)



Host Name:	SERVER01
IP Address:	172.16.13.1
	172.16.12.1
	172.16.10.1
Subnet Mask:	255.255.255.0
	255.255.255.0
	255.255.255.0

Host Name:	SERVER02
IP Address:	172.16.12.2
	172.16.20.1
	172.16.23.1
Subnet Mask:	255.255.255.0
	255.255.255.0
	255.255.255.0

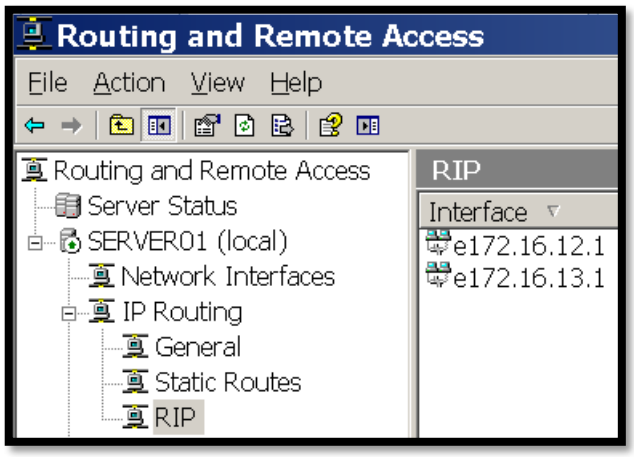
Host Name:	SERVER03
IP Address:	172.16.23.2
	172.16.30.1
	172.16.13.2
Subnet Mask:	255.255.255.0
	255.255.255.0
	255.255.255.0

Host Name:	SERVER04
IP Address:	172.16.30.4
Subnet Mask:	255.255.255.0
Default Gateway:	172.16.30.1

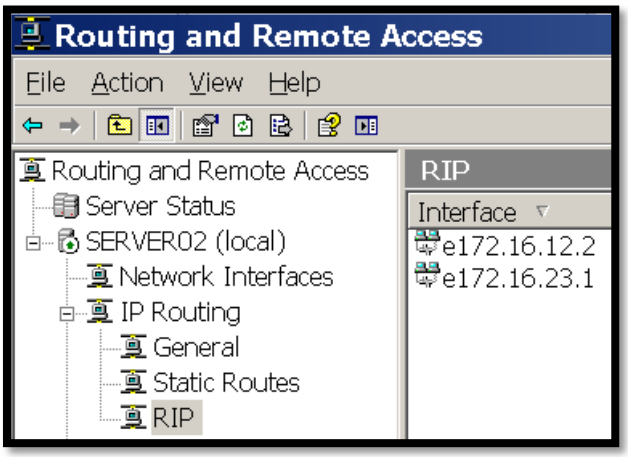
(Subnet Mask của tất cả đều là 255.255.255.0)

Cấu hình và khởi động dịch vụ Routing and Remote Access trên Server01, Server02, Server03 (giống Lab02)

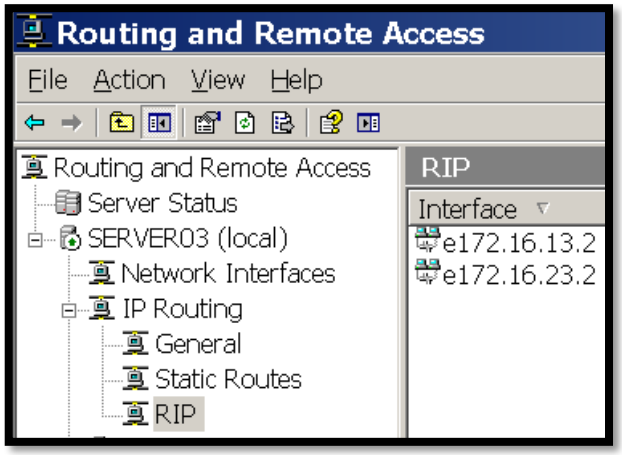
Server01:



Server02:

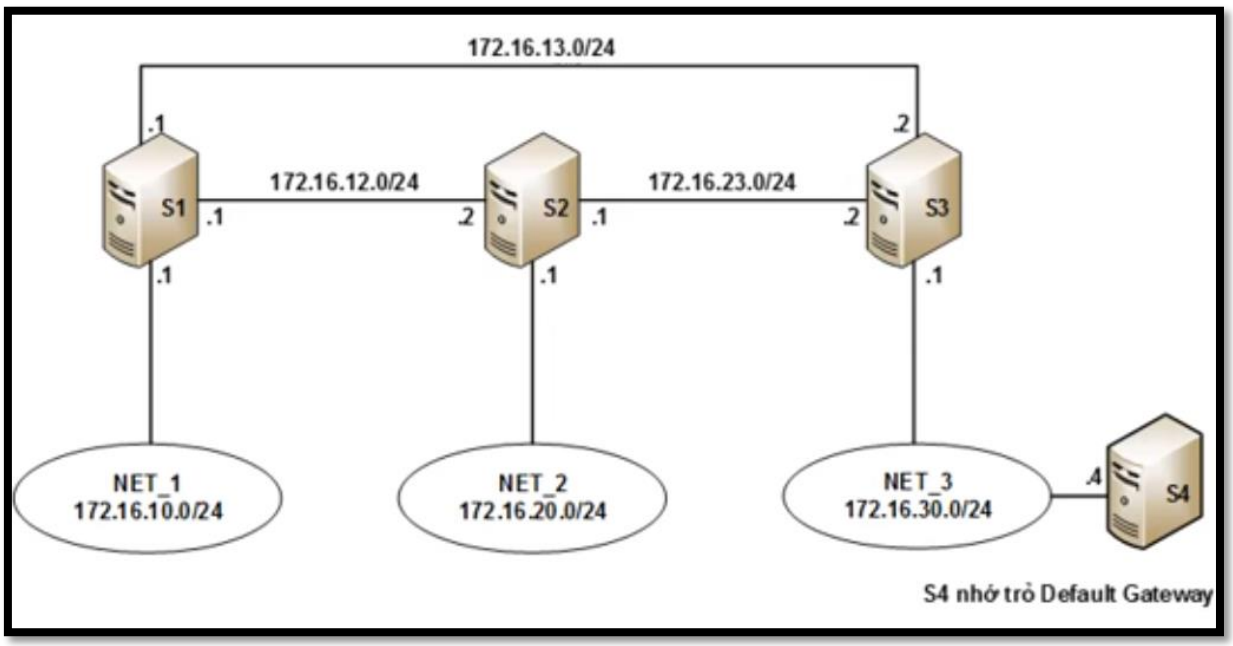


Server03:



Server04: Dùng Server04 để ping đến Server01 và Server02

Lab 09 - Configure Static Route (4 Server - 3 NIC)



Host Name:	SERVER01
IP Address:	172.16.13.1
	172.16.12.1
	172.16.10.1
Subnet Mask:	255.255.255.0
	255.255.255.0
	255.255.255.0

Host Name:	SERVER02
IP Address:	172.16.12.2
	172.16.20.1
	172.16.23.1
Subnet Mask:	255.255.255.0
	255.255.255.0
	255.255.255.0

Host Name:	SERVER03
IP Address:	172.16.23.2
	172.16.30.1
	172.16.13.2
Subnet Mask:	255.255.255.0
	255.255.255.0
	255.255.255.0

Host Name:	SERVER04
IP Address:	172.16.30.4
Subnet Mask:	255.255.255.0
Default Gateway:	172.16.30.1

(Subnet Mask của tất cả đều là 255.255.255.0)

Cấu hình và khởi động dịch vụ Routing and Remote Access trên Server01, Server02, Server03 (giống Lab02)

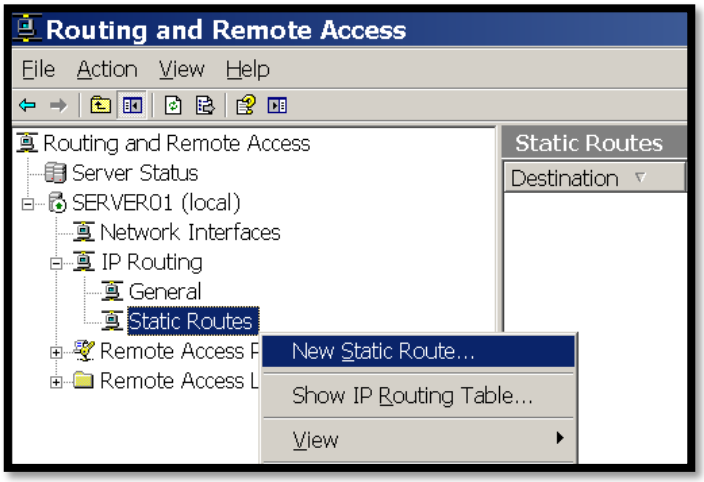
Cấu hình Static Route trên Server01:

Routing and Remote Access

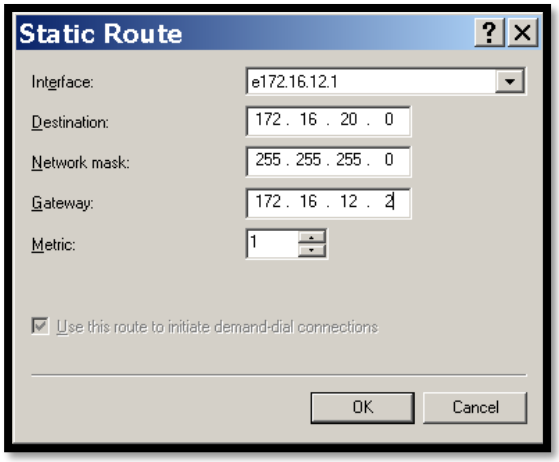
→ Tên server (Server01)

→ IP Routing → Static Routes

→ New Static Route…



- **Destination:** địa chỉ riêng của nhóm mạng NET_2 và NET_3
- **Gateway:** địa chỉ mà Server02 và Server03 dùng để kết nối với Server01 (nhìn theo đường dây kết nối trên sơ đồ mạng)



Static Routes

Destination	Network mask	Gateway	Interface	Metric	View
172.16.20.0	255.255.255.0	172.16.12.2	e172.16.12.1	1	Both
172.16.30.0	255.255.255.0	172.16.13.2	e172.16.13.1	1	Both

Cấu hình Static Route trên Server02:

Static Routes

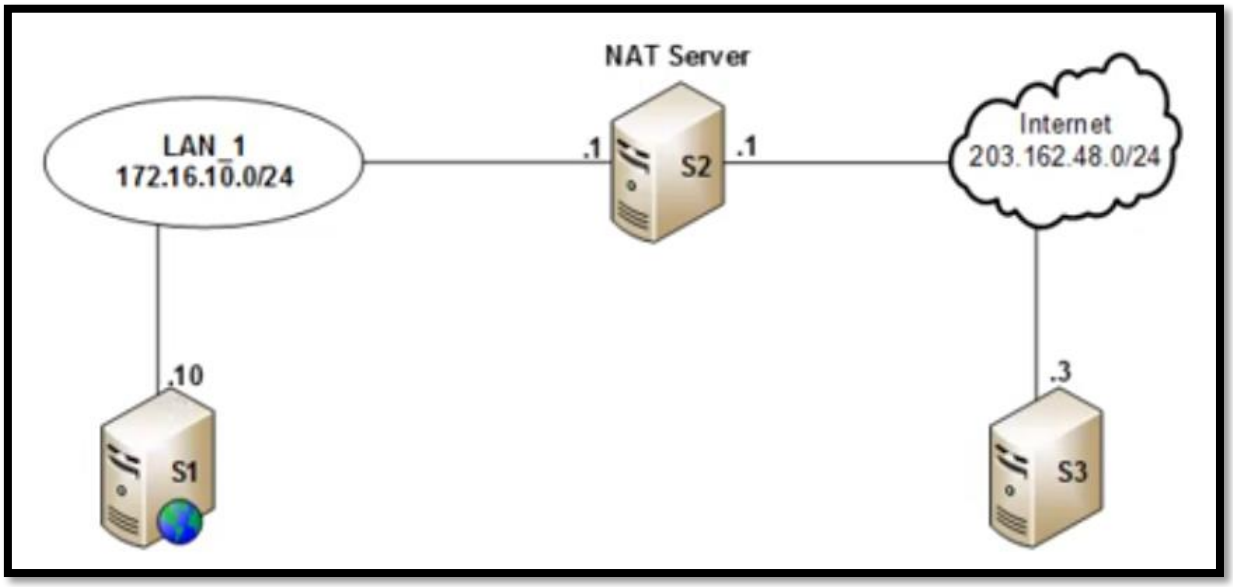
Destination	Network mask	Gateway	Interface	Metric	View
172.16.10.0	255.255.255.0	172.16.12.1	e172.16.12.2	1	Both
172.16.30.0	255.255.255.0	172.16.23.2	e172.16.23.1	1	Both

Cấu hình Static Route trên Server03:

Static Routes

Destination	Network mask	Gateway	Interface	Metric	View
172.16.10.0	255.255.255.0	172.16.13.1	e172.16.13.2	1	Both
172.16.20.0	255.255.255.0	172.16.23.1	e172.16.13.2	1	Both

Lab 10 - Nat OverLapping Networks – NAT vô (2 Server - 1 NIC + 1 NAT Server - 2 NIC)



(Server01 nhớ trở Default Gateway)

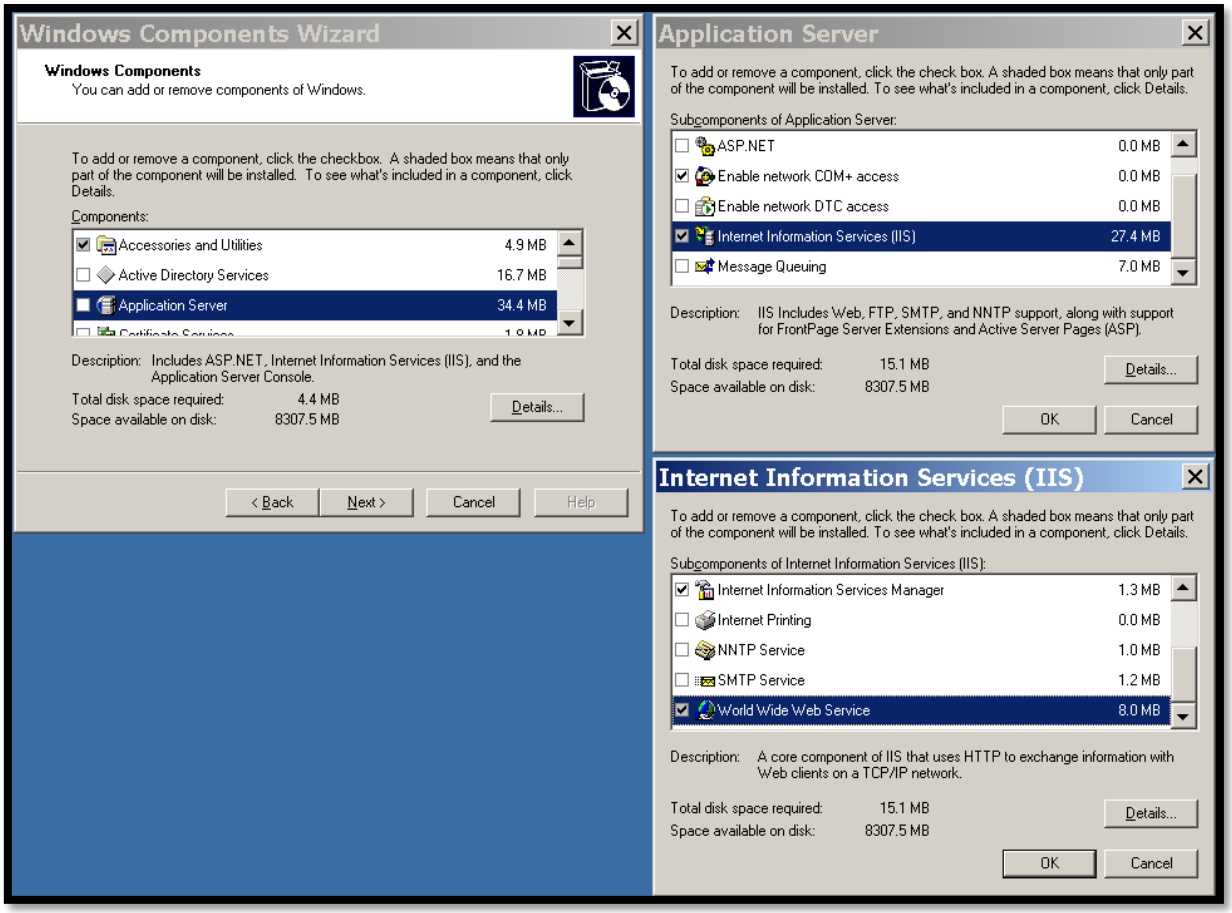
Host Name:	SERVER01
IP Address:	172.16.10.10
Subnet Mask:	255.255.255.0
Default Gateway:	172.16.10.1

Host Name:	SERVER02
IP Address:	203.162.48.1
	172.16.10.1
Subnet Mask:	255.255.255.0
	255.255.255.0

Host Name:	SERVER03
IP Address:	203.162.48.3
Subnet Mask:	255.255.255.0

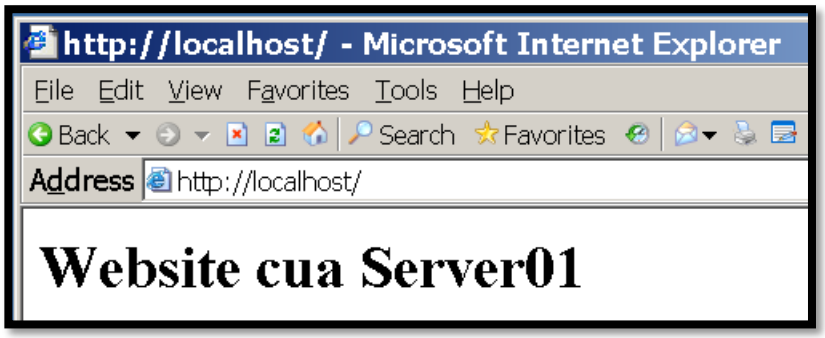
Cấu hình Web Server trên Server01:

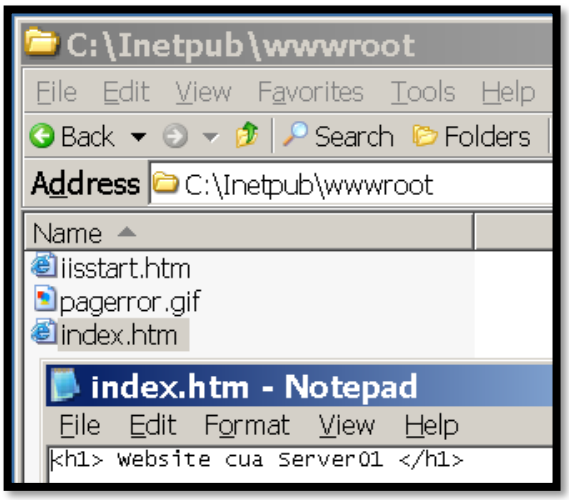
Control Panel → Add or Remove Programs → Add/Remove Windows Components → Application Server → Details… → Internet Information Services (IIS) → Details… → Word Wide Web Service → OK → OK → Next → Finish



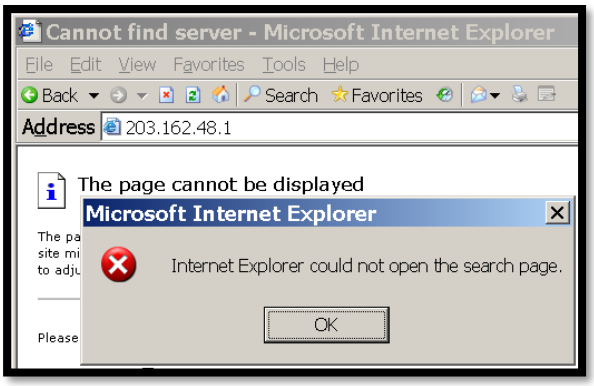
Trong "C:\Inetpub\wwwroot" tạo tập tin index.htm với nội dung tuỳ thích

Vào trình duyệt IE gõ "localhost" để kiểm tra



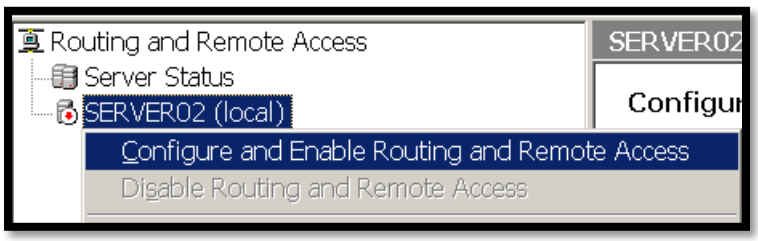


Thử từ Server03 dùng trình duyệt IE truy cập đến Web Server bằng địa chỉ trên card mạng ngoài (card mạng public - e203.162.48.1) của máy Server02 (NAT Server):



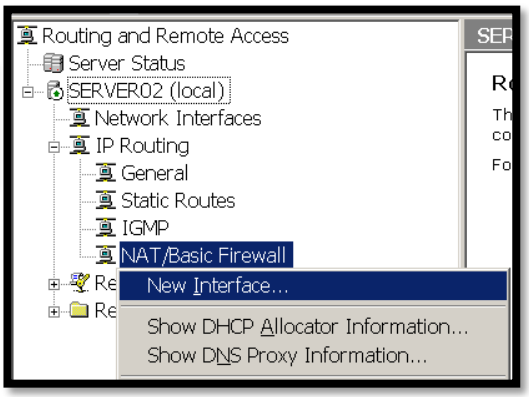
→ Lúc này vẫn chưa truy cập được

Khởi động dịch vụ NAT trên Server02:
Administrative Tools → Routing and Remote Access

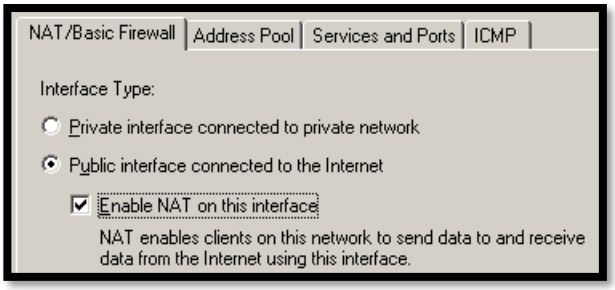


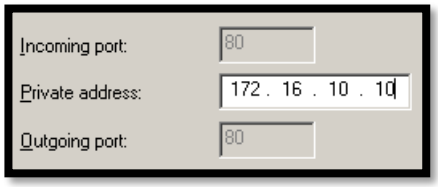
Routing and Remote Access
→ Tên server (local)
→ Configure and Enable Routing and Remote Access → Next → Custom configuration
→ Tích chọn "NAT and basic firewall" → Next → Finish
→ Hộp thoại hiện ra → Yes

NAT/Basic Firewall → New Interface
→ Chọn card mạng e172
→ Ở tab NAT/Basic Firewall, Interface type: tích chọn "Private interface connected to private network" → OK



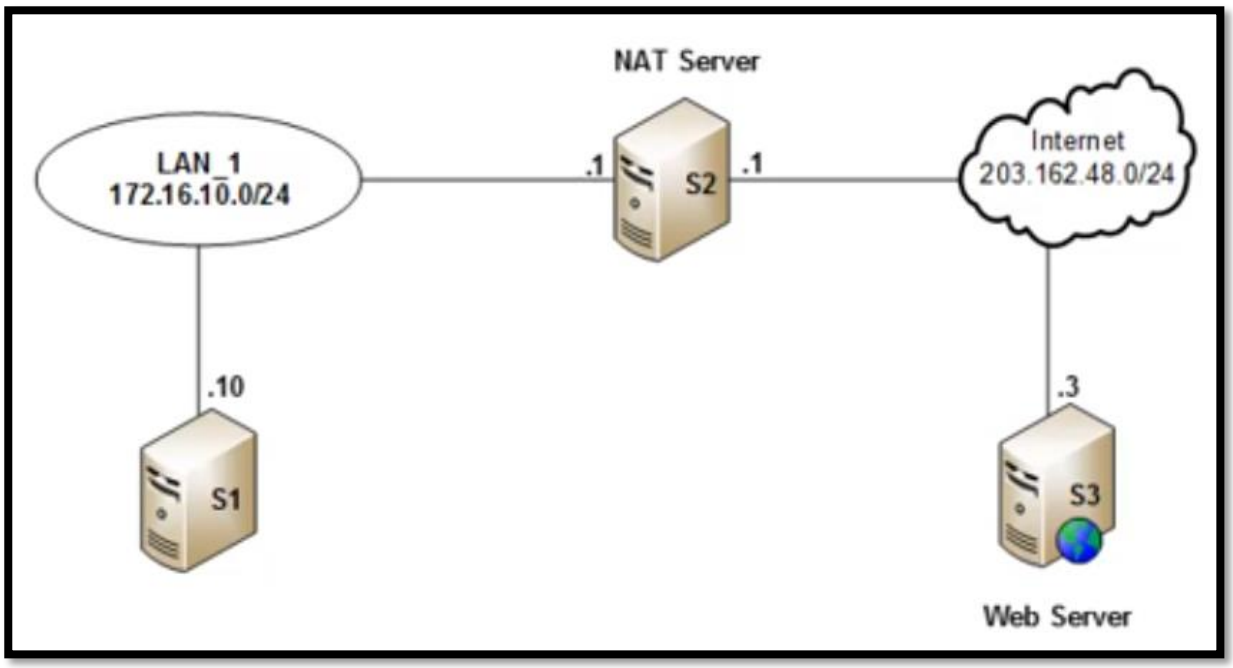
→ Chọn card mạng e203
→ Ở tab NAT/Basic Firewall, Interface type: tích chọn "Public interface connected to network"
→ Tích chọn "Enable NAT on this interface"
→ Ở tab Services and Ports, tích chọn "Web Server (HTTP)"
→ Tại Private address, điền địa chỉ của Server01: 172.16.10.10 → OK → OK





Tên server (local) → All Tasks → Restart

Lab 11 - Nat OverLoading – NAT ra (2 Server - 1 NIC + 1 NAT Server - 2 NIC)

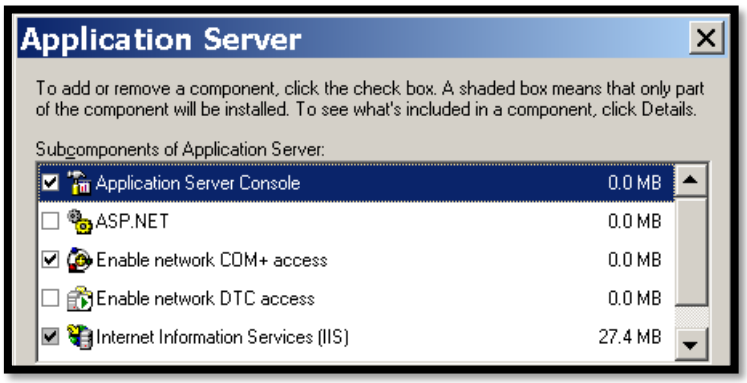


(Server01 nhớ trở Default Gateway)

Host Name:	SERVER01
IP Address:	172.16.10.10
Subnet Mask:	255.255.255.0
Default Gateway:	172.16.10.1

Host Name:	SERVER02
IP Address:	203.162.48.1
	172.16.10.1
Subnet Mask:	255.255.255.0
	255.255.255.0

Host Name:	SERVER03
IP Address:	203.162.48.3
Subnet Mask:	255.255.255.0

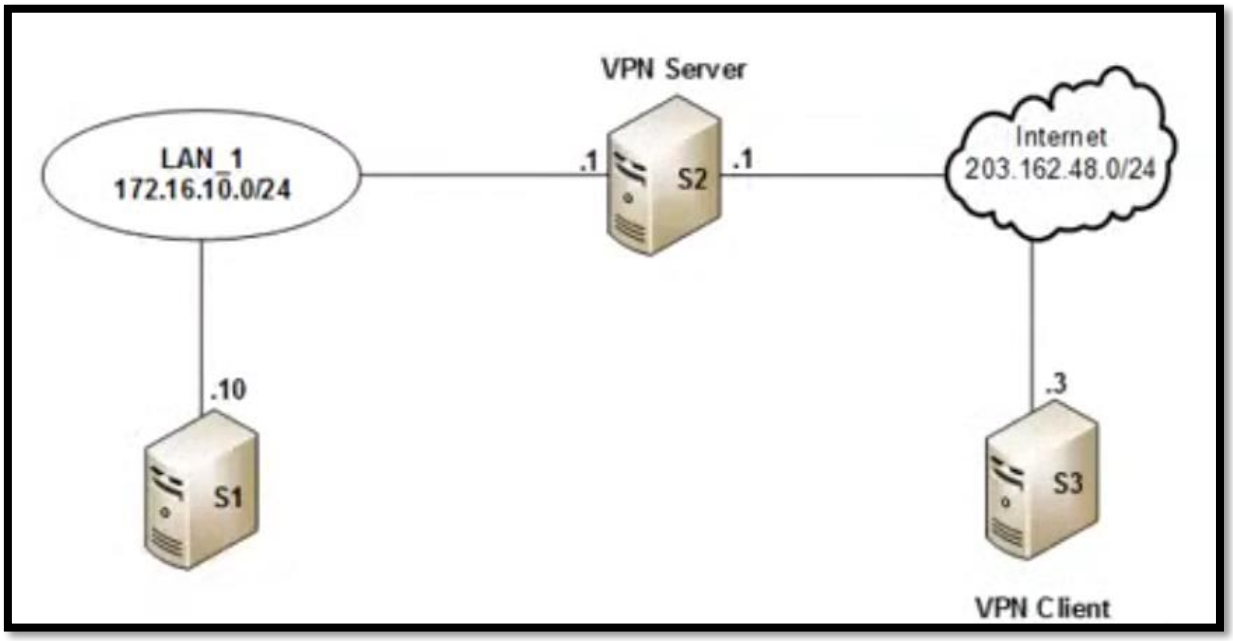


Cấu hình Web Server trên Server03: giống Lab10, tích chọn thêm "Application Server Console"
→ Tạo file "index.htm" giống Lab10

Thử từ Server01 dùng trình duyệt IE truy cập đến Web Server bằng địa chỉ trên card mạng nội bộ (card mạng private - e203.162.48.3) của máy Server03 → Truy cập thất bại

Khởi động dịch vụ NAT trên Server02: giống Lab10, không cần điền Private address ở tab Services and Ports

Lab 12 - Configure VPN Client To Gateway (2 Server - 1 NIC + 1 NAT Server - 2 NIC)



Host Name:	SERVER01
IP Address:	172.16.10.10
Subnet Mask:	255.255.255.0
Default Gateway:	172.16.10.1

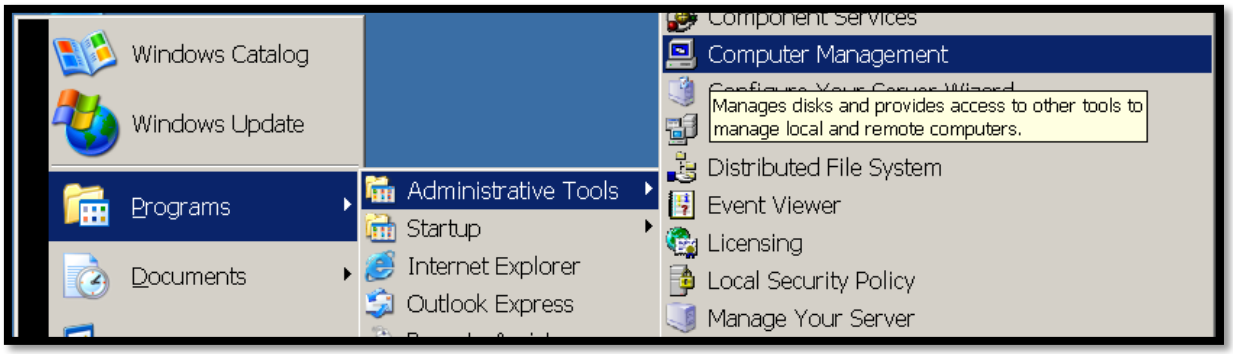
(Server01 nhớ trở Default Gateway)

Host Name:	SERVER02
IP Address:	203.162.48.1
	172.16.10.1
Subnet Mask:	255.255.255.0
	255.255.255.0

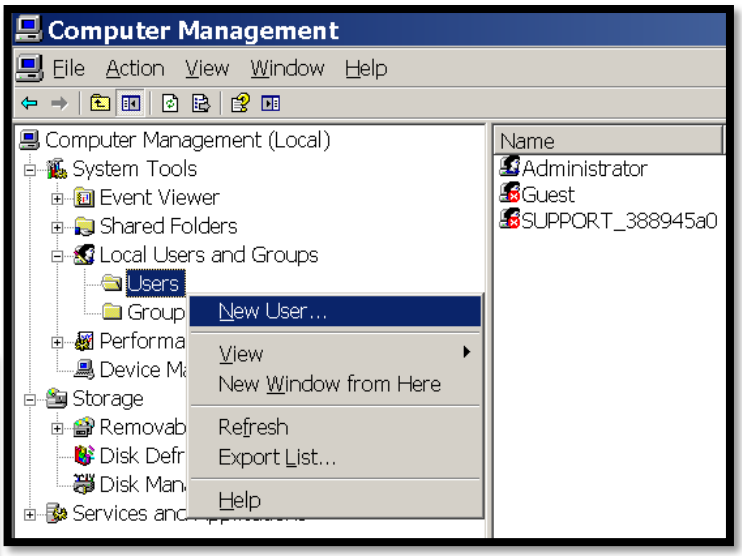
Host Name:	SERVER03
IP Address:	203.162.48.3
Subnet Mask:	255.255.255.0

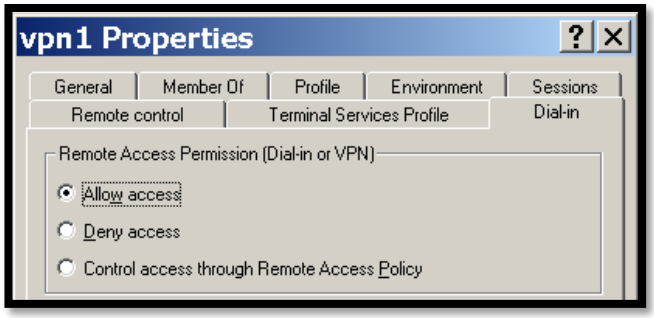
Trên Server02 tạo tài khoản và cho phép user truy cập từ xa:

Administrative Tools → Computer Management



Computer Management (Local)
→ System Tools
→ Local Users and Groups
→ Users → New User…
→ User name: vpn1 → Create
→ vpn1 Properties → Dial-in
→ Allow access → OK

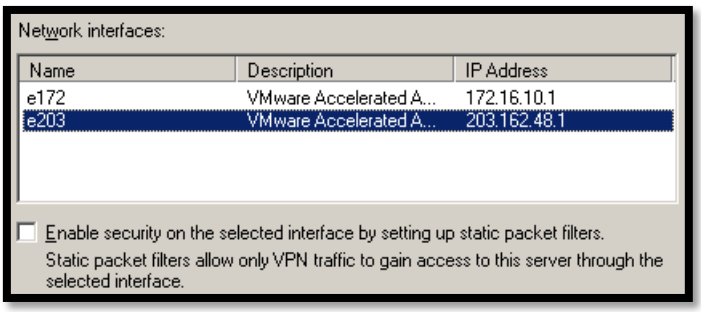




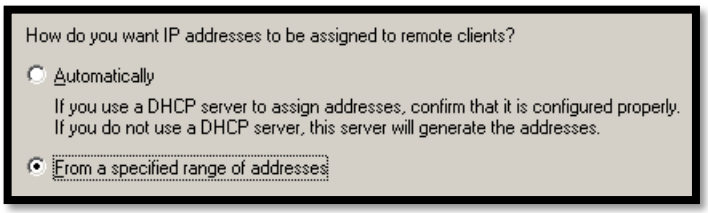
Khởi động dịch vụ VPN Server trên Server02:

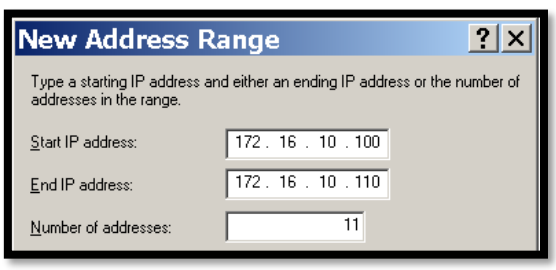
Administrative Tools
→ Routing and Remote Access
→ Configure and Enable Routing and Remote Access → Next → Tích chọn "Remote access (dial-up or VPN)" → Next
→ Tích chọn "VPN" → Next

→ Chọn card mạng e203 → Bỏ chọn "Enable security on the selected interface by setting up static packet filters"
→ Next



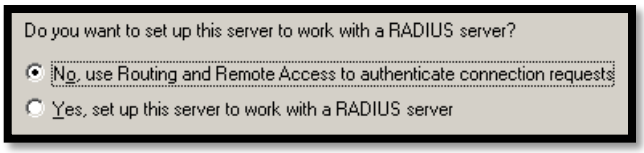
→ Tích chọn "From a specifed range of address" → Next



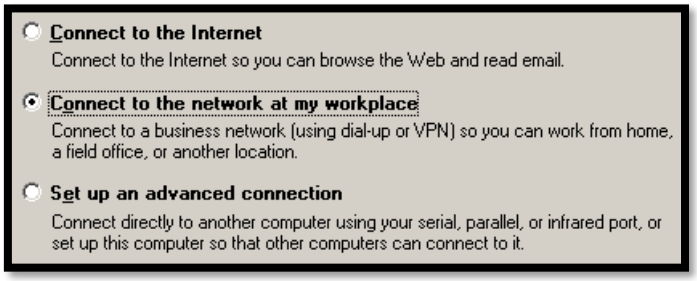


→ Address Range Assignment → New
→ Nhập Start IP address → Nhập Number of addresses để tự động điền End IP address → OK → Next

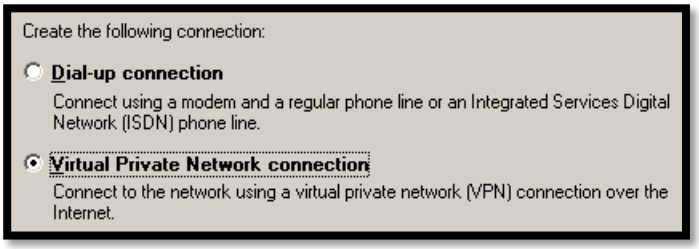
Tích chọn “No, use Routing and Remote Access to authenticate connection requests” → Next → Finish → OK



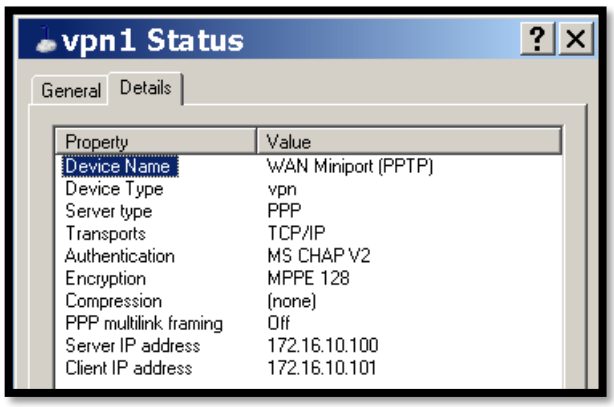
Tạo kết nối từ xa trên máy Server03:
My Network Places → Properties → New Connection Wizard → Next → Tích chọn “Connect to the network at my workplace” → Next



Tích chọn “Virtual Private Network connection” → Next → Company Name: vpn1 → Host name or IP address: 203.162.48.1 (địa chỉ IP public của VPN Server) → Next → Tích chọn “My use only” → Next → Finish

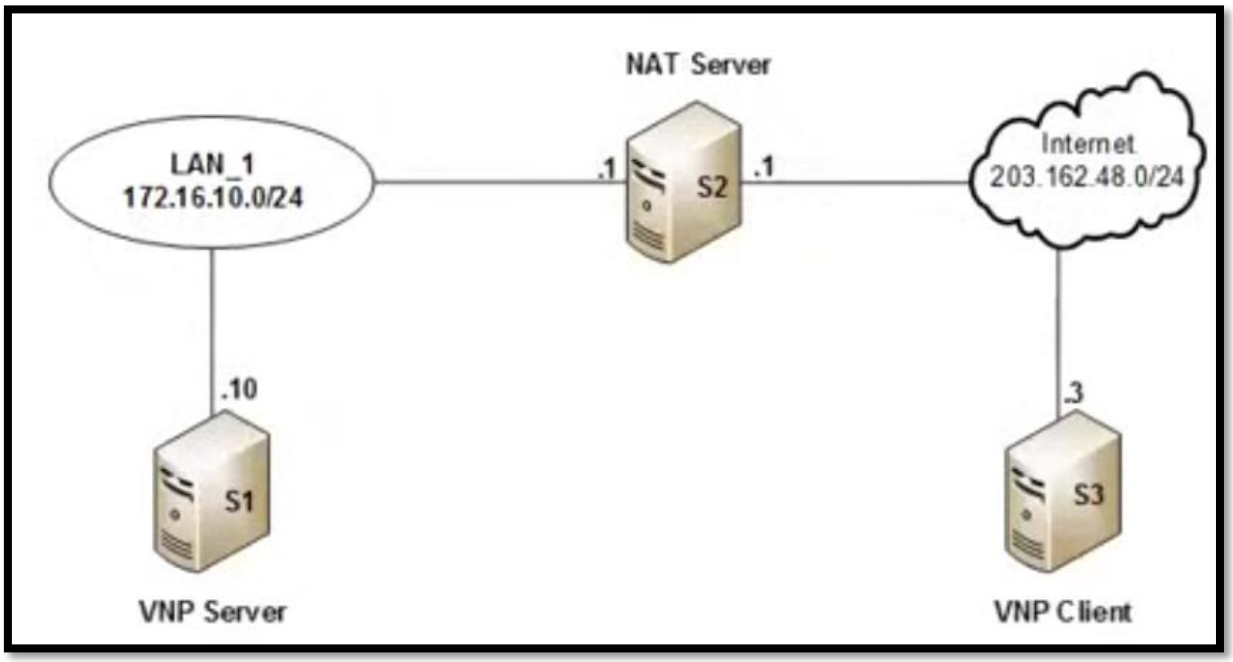


Nhập tài khoản user đã tạo → Connect




```
C:\Documents and Settings\Administrator>ping 172.16.10.10

Pinging 172.16.10.10 with 32 bytes of data:

Reply from 172.16.10.10: bytes=32 time=1ms TTL=127
Reply from 172.16.10.10: bytes=32 time=1ms TTL=127
Reply from 172.16.10.10: bytes=32 time=1ms TTL=127
Reply from 172.16.10.10: bytes=32 time=1ms TTL=127

Ping statistics for 172.16.10.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1ms, Average = 1ms
```

Lab 13 - Configure VPN Client To Gateway & NAT (2 Server - 1 NIC + 1 NAT Server - 2 NIC)



Host Name:	SERVER01
IP Address:	172.16.10.10
Subnet Mask:	255.255.255.0
Default Gateway:	172.16.10.1

(Server01 nhớ trở Default Gateway)

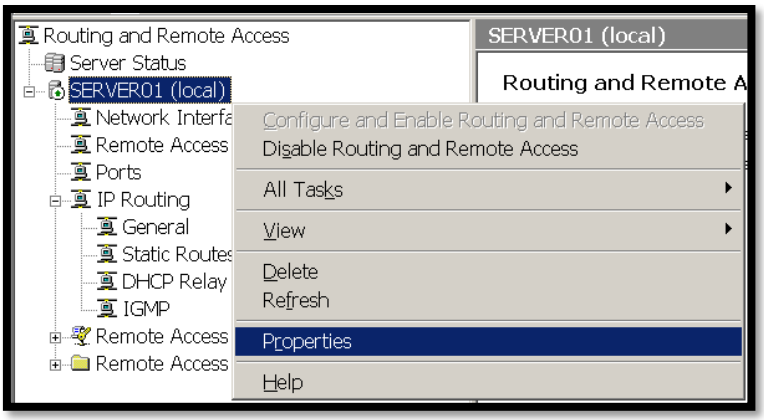
Host Name:	SERVER02
IP Address:	203.162.48.1
	172.16.10.1
Subnet Mask:	255.255.255.0
	255.255.255.0

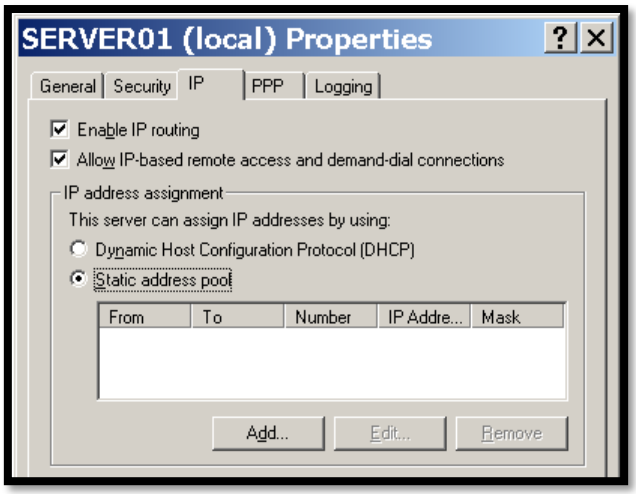
Host Name:	SERVER03
IP Address:	203.162.48.3
Subnet Mask:	255.255.255.0

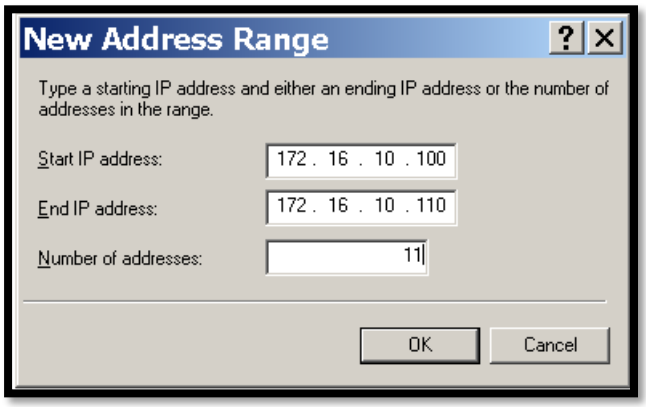
Trên Server01 tạo tài khoản và cho phép user truy cập từ xa:
Administrative Tools → Computer Management → Tạo user vpn2 → Properties → Dial-in → Allow access → OK

Khởi động dịch vụ VPN Server trên Server01:
Routing and Remote Access → Custom configuration → VPN access → Finish

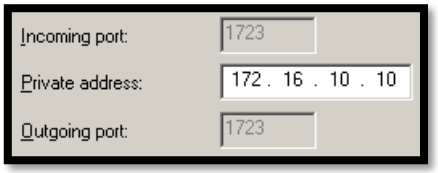
Routing and Remote Access
→ Tên server (local) → Properties
→ Tab IP → Static address pool → Add…



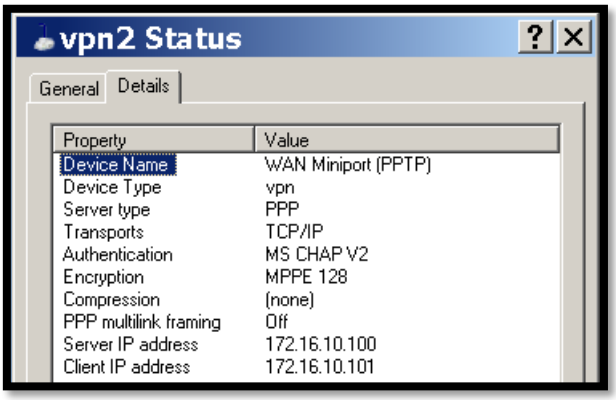


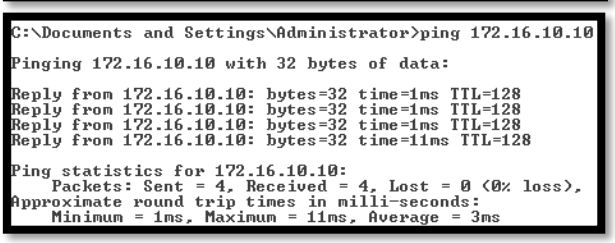


Khởi động dịch vụ NAT trên Server02: giống Lab10
→ Ở tab Services and Ports, tích chọn "VPN Gateway (PPTP)"
→ Điền địa chỉ IP của Server01 vào: 172.16.10.10
→ OK → OK

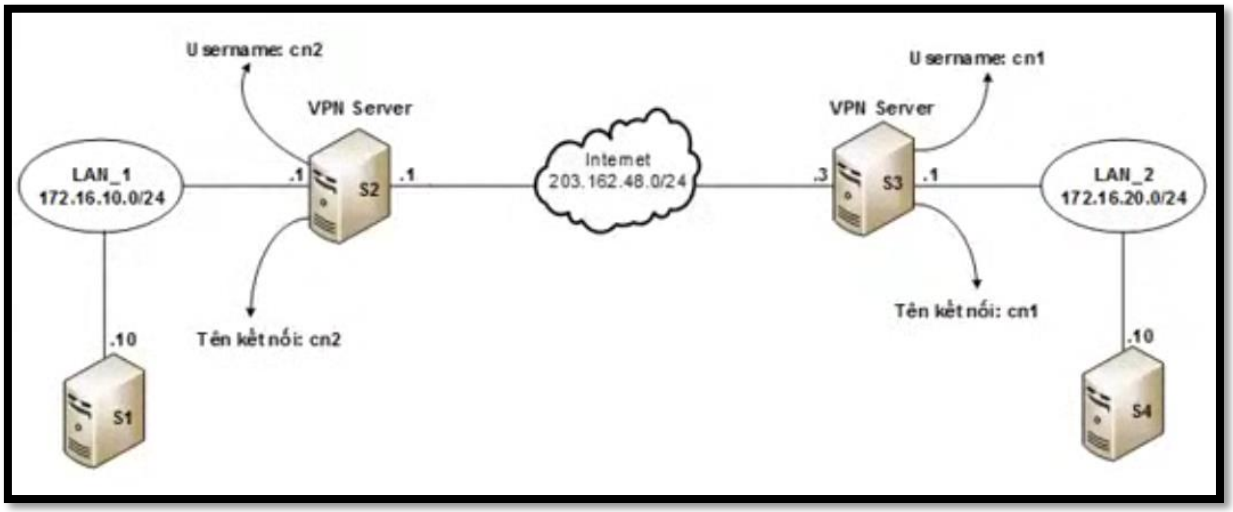


Tạo kết nối từ xa trên máy Server03:
My Network Places → Properties
→ New Connection Wizard → Next
→ Tích chọn "Connect to the network at my workplace" → Next
→ Tích chọn "Virtual Private Network connection"
→ Next
→ Company Name: vpn2
→ Host name or IP address: 203.162.48.1 (địa chỉ IP public của VPN Server) → Next
→ Tích chọn "My use only" → Next → Finish





Lab 14 - Configure VPN Gateway To Gateway (2 Server - 1 NIC + 2 VPN Server - 2 NIC)



Host Name:	SERVER01
IP Address:	172.16.10.10
Subnet Mask:	255.255.255.0
Default Gateway:	172.16.10.1

Host Name:	SERVER02
IP Address:	203.162.48.1
	172.16.10.1
Subnet Mask:	255.255.255.0
	255.255.255.0

Host Name:	SERVER03
IP Address:	203.162.48.3
	172.16.20.1
Subnet Mask:	255.255.255.0
	255.255.255.0

Host Name:	SERVER04
IP Address:	172.16.20.10
Subnet Mask:	255.255.255.0
Default Gateway:	172.16.20.1

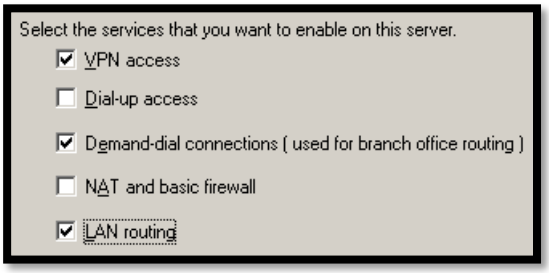
(Server01 và Server04 nhớ trở Default Gateway)

Trên Server02 và Server03 tạo tài khoản và cho phép user truy cập từ xa:

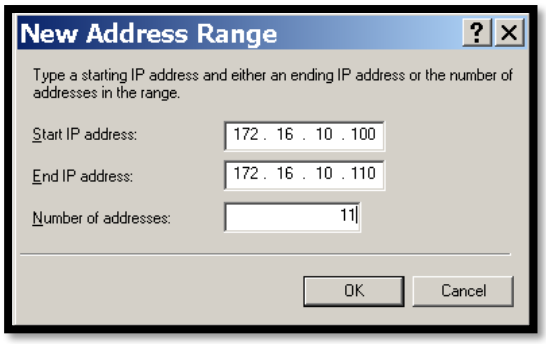
Server02: User name: cn2 → Properties → Dial-in → Allow access

Server03: User name: cn1 → Properties → Dial-in → Allow access

Khởi động dịch vụ VPN Server trên Server02:

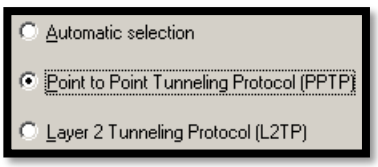


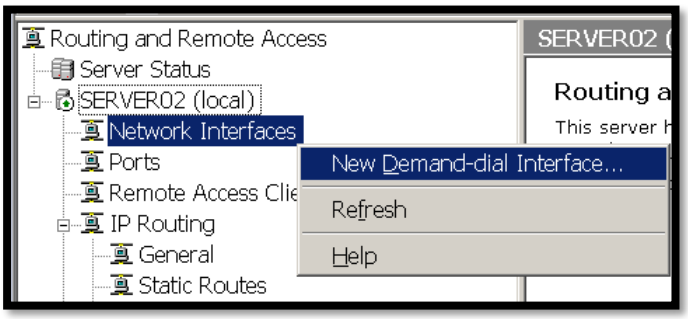
Administrative Tools → Routing and Remote Access
→ Configure and Enable Routing
→ Tích chọn các dòng
- VPN access
- Demand-dial connections
- LAN routing



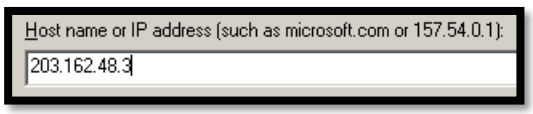
Tên server (local) → Properties → Dãy IP private LAN_1

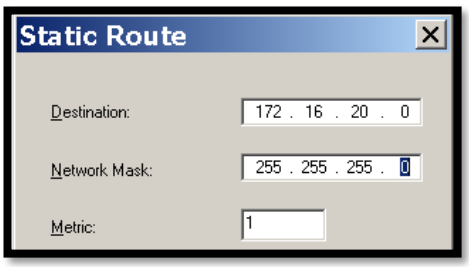
Network Interfaces → New Demand-dial Interface
→ Interface name: cn2 → Tích chọn "Connect using virtual private networking (VPN)"
→ Tích chọn "Point to Point Tunneling Protocol (PPTP)"





→ Host name or IP address: điền địa chỉ IP public của Server03
→ Tích chọn "Route IP packets on this interface"





→ Static Routes → Add
→ Điền dãy địa chỉ private của LAN_2
→ Dial Out Credentials → User name: cn1

Khởi động dịch vụ VPN Server trên Server03:

Tên server (local) → Properties → Dãy IP private LAN_2
Interface name: cn1
Host name or IP address: điền địa chỉ IP public của Server02
Static Routes → Điền địa chỉ private của LAN_1
Dial Out Credentials → User name: cn2

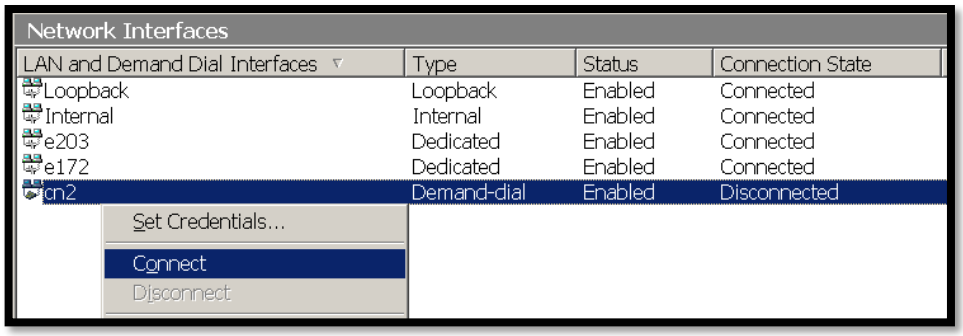
Tạo kết nối từ xa với Server02 và Server03:

Server03

→ Network Interfaces

→ Connect

→ Server02 sẽ tự được kết nối



Server01: ping đến Server04

```
C:\Documents and Settings\Administrator>ping 172.16.20.10

Pinging 172.16.20.10 with 32 bytes of data:

Reply from 172.16.20.10: bytes=32 time=3ms TTL=128
Reply from 172.16.20.10: bytes=32 time=1ms TTL=128
Reply from 172.16.20.10: bytes=32 time<1ms TTL=128
Reply from 172.16.20.10: bytes=32 time<1ms TTL=128

Ping statistics for 172.16.20.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 3ms, Average = 1ms
```

Server04: ping đến Server01

```
C:\Documents and Settings\Administrator>ping 172.16.10.10

Pinging 172.16.10.10 with 32 bytes of data:

Reply from 172.16.10.10: bytes=32 time=1ms TTL=126
Reply from 172.16.10.10: bytes=32 time=14ms TTL=126
Reply from 172.16.10.10: bytes=32 time=1ms TTL=126
Reply from 172.16.10.10: bytes=32 time=2ms TTL=126

Ping statistics for 172.16.10.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 14ms, Average = 4ms
```

Lab 15 - Review Summary - VPN Gateway To Gateway & DNS & Mail Server