

Communications and Networks Lab
Fall 2021
B54

Project Phase 1

Instructor: Eng. Mohammed Mohammed

Submitted by:

Nirvana Aladal 201802829

Abeer Mohiddin 201800931

Fatma Almannai 201702058

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Subnet Name	Needed Size	Allocated Size	Address	Mask	Dec Mask	Assignable Range	Broadcast	Default Gateway	Host Addresses	Switch Addresses
Media lab	500	512-2	212.21.0.0	/23	255.255.254.0	212.21.0.1 - 212.21.1.254	212.21.1.255	212.21.0.1	212.21.0.2-212.21.1.243	212.21.1.253-212.21.1.254
English lab	235	256-2	212.21.2.0	/24	255.255.255.0	212.21.2.1 - 212.21.2.254	212.21.2.255	212.21.2.1	212.21.2.2-212.21.2.237	212.21.2.248-212.21.2.254
C++ lab	99	128-2	212.21.3.0	/25	255.255.255.128	212.21.3.1 - 212.21.3.126	212.21.3.127	212.21.3.1	212.21.3.2-212.21.3.101	212.21.3.114-212.21.3.126
WAN	2	4-2	212.21.3.128	/30	255.255.255.252	212.21.3.129 - 212.21.3.130	212.21.3.131	NA	NA	NA

Subnetting Table

First Building:

Building 1 Unused range: 212.21.3.131 – 212.21.63.0

Major Network: 212.21.0.0/18

Available IP addresses in major network: 16382

Number of IP addresses needed: 836

Available IP addresses in allocated subnets: 892

Second Building:

Subnet Name	Prefix	Subnet Mask	Network Address	Broadcast Address	Default Gateway	Host Addresses	Switch Addresses
Servers & Printers Farm	/28	255.255.255.240	162.12.0.0	162.12.0.15	162.12.0.1	162.12.0.2 – 162.12.0.14	162.12.0.14
Graphics Lab	/24	255.255.255.0	77.44.0.0	77.44.0.255	77.44.0.1	77.44.0.2 – 77.44.0.254	77.44.0.247 – 77.44.0.254

Graphics lab unused Range: 77.44.1.0 – 77.44.15.255

IPv6:

Need 10 IPs we can assign 16

Given range is 2001:DB8:ACAD:0001::/64

We need only 16 IP address

So it prefix value if /124

2001:DB8:ACAD:0001::1/124

2001:DB8:ACAD:0001::2/124

2001:DB8:ACAD:0001::3/124

2001:DB8:ACAD:0001::4/124

2001:DB8:ACAD:0001::5/124

2001:DB8:ACAD:0001::6/124

2001:DB8:ACAD:0001::7/124

2001:DB8:ACAD:0001::8/124

2001:DB8:ACAD:0001::9/124

2001:DB8:ACAD:0001::A/124

2001:DB8:ACAD:0001::B/124

2001:DB8:ACAD:0001::C/124

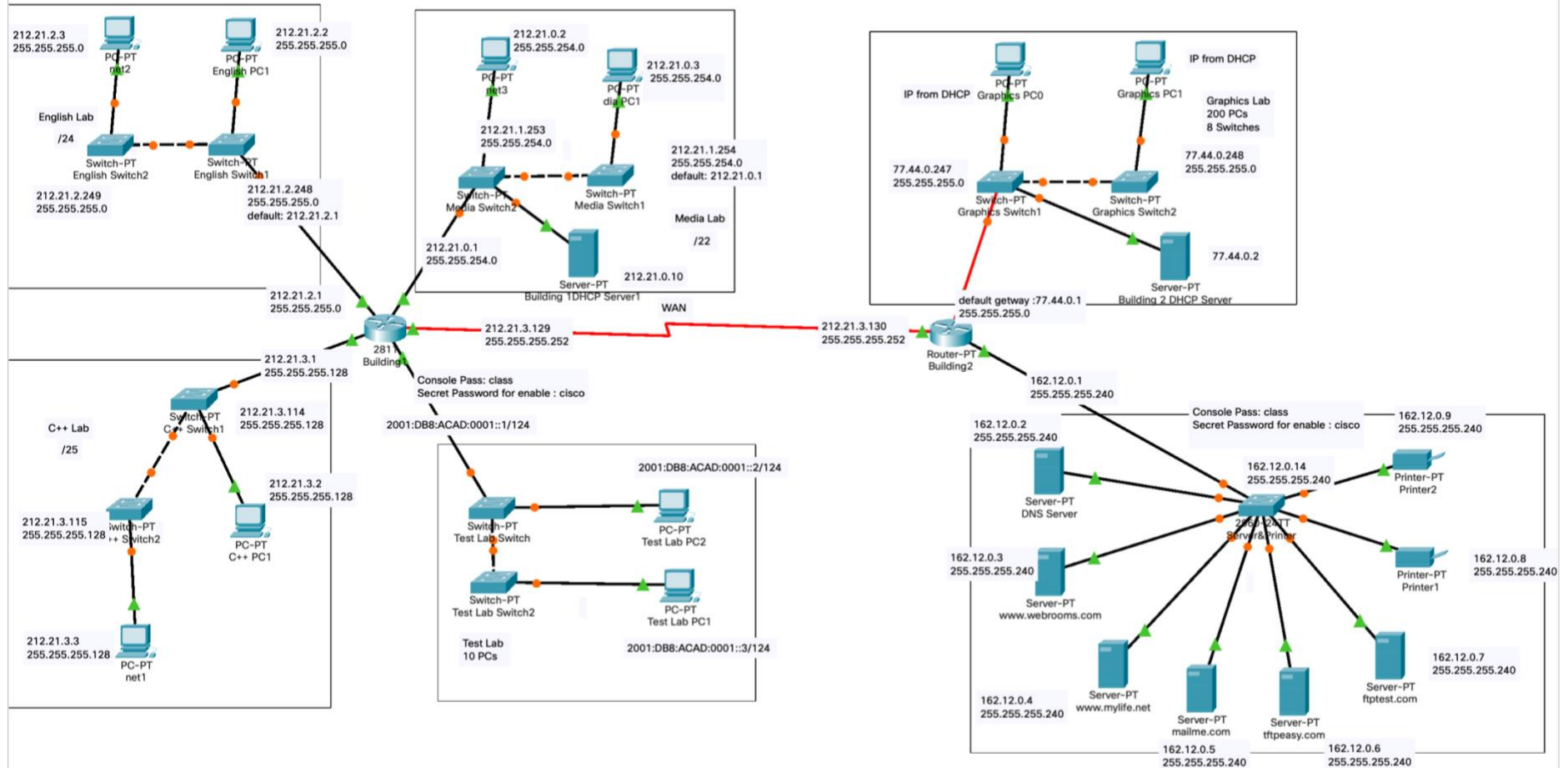
2001:DB8:ACAD:0001::D/124

2001:DB8:ACAD:0001::E/124

2001:DB8:ACAD:0001::F/124

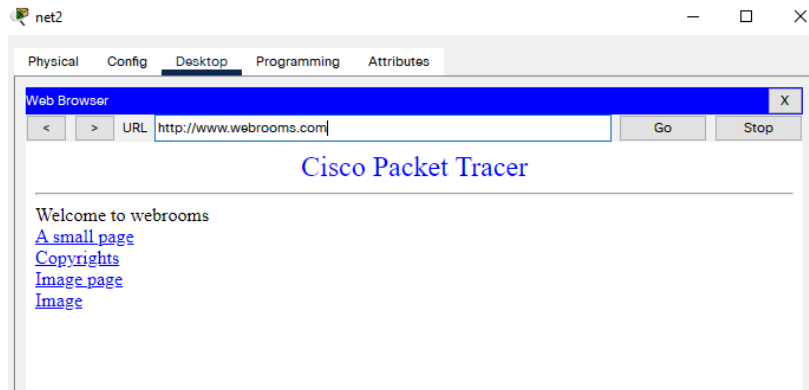
2001:DB8:ACAD:0001::10/124

Topology:

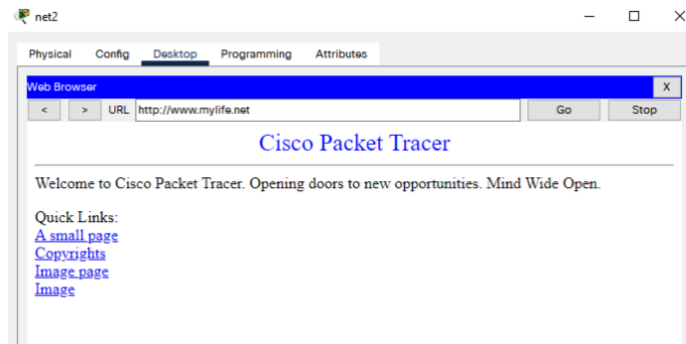


ScreenShots:

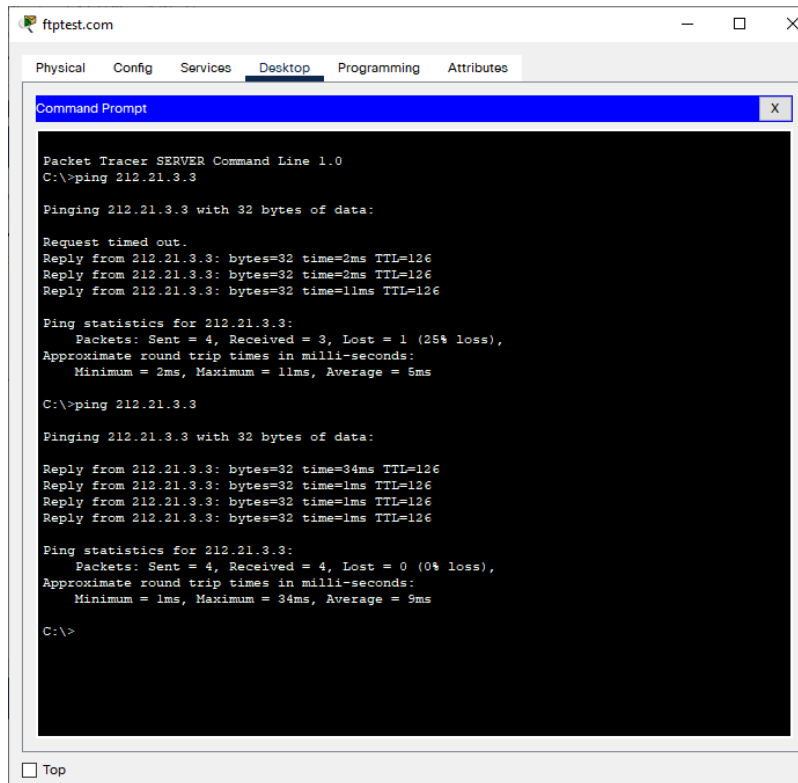
- 1) Webrooms is accessible from net2 PC:



- 2) Mylife.com is accessible



3) Ping from ftp server to net1 PC:



The screenshot shows a Packet Tracer window titled 'ftptest.com' with tabs for Physical, Config, Services, Desktop, Programming, and Attributes. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The Command Prompt shows the output of a ping command from a server to a PC (212.21.3.3). The first ping attempt shows a 25% loss (1 packet lost) with a round trip time of 11ms. The second ping attempt shows 0% loss (0 packets lost) with a round trip time of 1ms.

```
Packet Tracer SERVER Command Line 1.0
C:\>ping 212.21.3.3

Pinging 212.21.3.3 with 32 bytes of data:

Request timed out.
Reply from 212.21.3.3: bytes=32 time=2ms TTL=126
Reply from 212.21.3.3: bytes=32 time=2ms TTL=126
Reply from 212.21.3.3: bytes=32 time=11ms TTL=126

Ping statistics for 212.21.3.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 11ms, Average = 5ms

C:\>ping 212.21.3.3

Pinging 212.21.3.3 with 32 bytes of data:

Reply from 212.21.3.3: bytes=32 time=34ms TTL=126
Reply from 212.21.3.3: bytes=32 time=1ms TTL=126
Reply from 212.21.3.3: bytes=32 time=1ms TTL=126
Reply from 212.21.3.3: bytes=32 time=1ms TTL=126

Ping statistics for 212.21.3.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 34ms, Average = 9ms

C:\>
```

☐ Top

4) DHCP server for Building 1:

Building 1DHCP Server1

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

Start IP Address: 212 21 0 0

Subnet Mask: 255 255 254 0

Maximum Number of Users: 500

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	0.0.0.0	0.0.0.0	212.21....	255.255...	500	0.0.0.0	0.0.0.0
c++Pool	212.21....	162.12....	212.21....	255.255...	99	0.0.0.0	0.0.0.0
englishPool	212.21....	162.12....	212.21....	255.255...	235	0.0.0.0	0.0.0.0
mediaPool	212.21....	162.12....	212.21....	255.255...	500	0.0.0.0	0.0.0.0

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5) DHCP for Building 2:

Building 2 DHCP Server

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

Start IP Address: 77 44 0 0

Subnet Mask: 255 255 255 0

Maximum Number of Users: 512

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
GraphicsLabP...	77.44.0.1	162.12....	77.44.0.3	255.255...	210	0.0.0.0	0.0.0.0
serverPool	0.0.0.0	0.0.0.0	77.44.0.0	255.255...	512	0.0.0.0	0.0.0.0

6) FTP server:

The screenshot shows the 'Services' tab in the ftptest.com interface. The left sidebar lists various services: HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP (selected), IoT, VM Management, and Radius EAP. The main area is titled 'FTP' and shows the service status as 'On'. Below this is the 'User Setup' section with input fields for 'Username' and 'Password', and checkboxes for 'Write', 'Read', 'Delete', 'Rename', and 'List'. A table lists four users: 'cisco', 'net1', 'net2', and 'net3', all with 'RWDNL' permissions. To the right of the table are 'Add', 'Save', and 'Remove' buttons. Below the user setup is a 'File' list containing five items: 'StudentNames.txt', 'asa842-k8.bin', 'asa923-k8.bin', 'c1841-advipservicesk9-mz.124-15.T1.bin', and 'c1841-ipbase-mz.123-14.T7.bin'. A 'Remove' button is located at the bottom right of the file list.

ftptest.com

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP**
- IoT
- VM Management
- Radius EAP

FTP

Service ☒ On ☐ Off

User Setup

Username Password

☐ Write ☐ Read ☐ Delete ☐ Rename ☐ List

	Username	Password	Permission	
1	cisco	cisco	RWDNL	Add
2	net1	123456	RWDNL	Save
3	net2	123456	RWDNL	Remove
4	net3	123456	RWDNL	

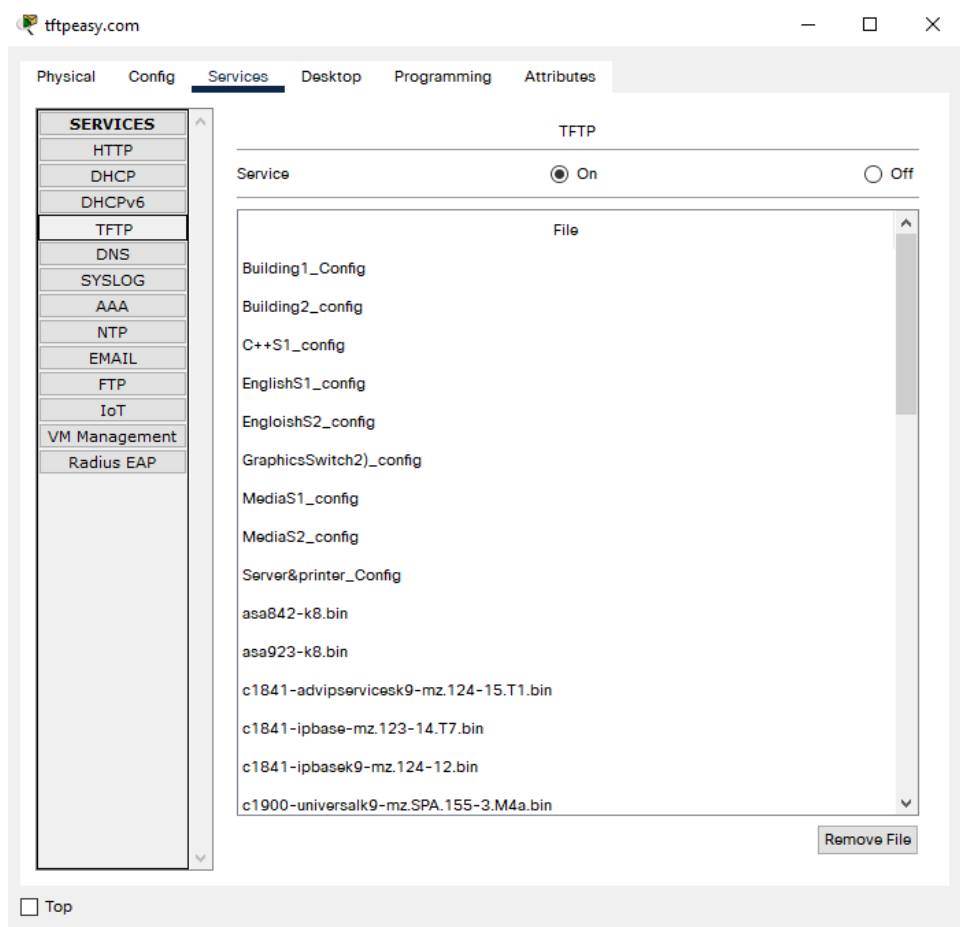
File

- 1 StudentNames.txt
- 2 asa842-k8.bin
- 3 asa923-k8.bin
- 4 c1841-advipservicesk9-mz.124-15.T1.bin
- 5 c1841-ipbase-mz.123-14.T7.bin

Remove

☐ Top

7) TFTP server:



8) DNS server:

DNS Server

Physical

Config

Services

Desktop

Programming

Attributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

DNS

DNS Service ☒ On ☐ Off

Resource Records

Name Type

A Record

Address

Add

Save

Remove

No.	Name	Type	Detail
0	ftptest.com	A Record	162.12.0.7
1	mailme.com	A Record	162.12.0.5
2	tftppeasy.com	A Record	162.12.0.6
3	www.mylife.net	A Record	162.12.0.4
4	www.webrooms.com	A Record	162.12.0.3

DNS Cache

☐ Top

9) IPV6 Configuration for PC:

Test Lab PC2

Physical Config Desktop Programming Attributes

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address:

Subnet Mask:

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: 2001:DB8:ACAD:1::2 / 124

Link Local Address: FE80::201:C7FF:FE89:4342

Default Gateway: FE80::1

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MDS

Username:

Password:

☐ Top

10) Mailme.com

The screenshot shows a web-based configuration interface for Mailme.com. The browser window title is "mailme.com". The interface has a top navigation bar with tabs: Physical, Config, Services (selected), Desktop, Programming, and Attributes. On the left, a "SERVICES" sidebar lists various services: HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL (selected), FTP, IoT, VM Management, and Radius EAP. The main content area is titled "EMAIL" and contains the following configuration options:

- SMTP Service:** A group box containing two radio buttons, "ON" (selected) and "OFF".
- POP3 Service:** A group box containing two radio buttons, "ON" (selected) and "OFF".
- Domain Name:** A text input field containing "mailme.com" and a "Set" button to its right.
- User Setup:** A section containing a "User" text input field and a "Password" text input field.
- Users List:** A list box containing the entries "net1", "net2", and "net3".
- Add Button:** A button with a "+" sign located at the bottom right of the Users List.

Building 1 Router Information:

Building configuration...

Current configuration : 1903 bytes

```
!  
version 15.1  
no service timestamps log datetime msec  
no service timestamps debug datetime msec  
no service password-encryption  
!  
hostname Building1  
!  
!  
!  
enable secret 5 $1$mERr$hx5rVt7rPNoS4wqbXKX7m0  
!  
!  
!  
!  
!  
!  
no ip cef  
ipv6 unicast-routing  
!  
no ipv6 cef  
!  
!  
!  
!  
license udi pid CISCO2811/K9 sn FTX1017LQJ9-  
!  
!  
!
```



```
!  
!  
!  
!  
!  
!  
!  
!  
spanning-tree mode pvst  
!  
!  
!  
!  
!  
!  
interface FastEthernet0/0  
no ip address  
duplex auto  
speed auto  
ipv6 address FE80::1 link-local  
ipv6 address 2001:DB8:ACAD:1::1/124  
!  
interface FastEthernet0/1  
ip address 212.21.3.1 255.255.255.128  
ip helper-address 212.21.0.10  
duplex auto  
speed auto  
!  
interface Serial0/0/0  
description Building1 WAN  
ip address 212.21.3.129 255.255.255.252  
clock rate 2000000
```

```
!  
interface Serial0/0/1  
no ip address  
clock rate 2000000  
shutdown  
!  
interface FastEthernet0/1/0  
switchport mode access  
switchport nonegotiate  
!  
interface FastEthernet0/1/1  
switchport mode access  
switchport nonegotiate  
!  
interface FastEthernet0/1/2  
switchport mode access  
switchport nonegotiate  
!  
interface FastEthernet0/1/3  
switchport mode access  
switchport nonegotiate  
!  
interface GigabitEthernet0/2/0  
no ip address  
shutdown  
!  
interface GigabitEthernet0/3/0  
no ip address  
shutdown  
!  
interface FastEthernet1/0  
ip address 212.21.2.1 255.255.255.0
```

```
ip helper-address 212.21.0.10
duplex auto
speed auto
!
interface FastEthernet1/1
ip address 212.21.0.1 255.255.254.0
ip helper-address 162.12.0.2
ip helper-address 162.12.0.10
ip helper-address 212.21.0.10
duplex auto
speed auto
!
interface Vlan1
no ip address
shutdown
!
router rip
version 2
network 212.21.0.0
network 212.21.2.0
network 212.21.3.0
!
ip classless
ip route 162.12.0.0 255.255.255.128 212.21.3.130
ip route 77.44.0.0 255.255.240.0 212.21.3.130
!
ip flow-export version 9
!
!
!
!
!
```

```
!  
!  
!  
line con 0  
password class  
login  
!  
line aux 0  
!  
line vty 0 4  
login  
!  
!  
!  
end
```

Building 2 Router Information:

Building configuration...

Current configuration : 1262 bytes

```
!  
version 12.2  
no service timestamps log datetime msec  
no service timestamps debug datetime msec  
no service password-encryption  
!  
hostname Building2  
!  
!  
!  
enable secret 5 $1$mERr$hx5rVt7rPNoS4wqbXKX7m0  
!
```



```
ip address 162.12.0.1 255.255.255.240
duplex auto
speed auto
!
interface Serial2/0
description Building2 WAN
ip address 212.21.3.130 255.255.255.252
!
interface Serial3/0
no ip address
clock rate 2000000
shutdown
!
interface FastEthernet4/0
ip address 77.44.0.1 255.255.255.0
!
interface FastEthernet5/0
no ip address
shutdown
!
interface GigabitEthernet6/0
no ip address
shutdown
!
interface GigabitEthernet7/0
no ip address
duplex auto
speed auto
shutdown
!
router rip
version 2
```

```
network 77.0.0.0
network 162.12.0.0
!
ip classless
ip route 212.21.0.0 255.255.254.0 212.21.3.129
ip route 212.21.2.0 255.255.255.0 212.21.3.129
ip route 212.21.3.0 255.255.255.128 212.21.3.129
ip route 212.21.3.128 255.255.255.252 212.21.3.129
!
ip flow-export version 9
!
!
!
no cdp run
!
!
!
!
!
!
line con 0
password class
login
!
line aux 0
!
line vty 0 4
login
!
!
!
end
```