

INTERNSHIP ON NETWORKING MANAGEMENT

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering.

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APPROVAL

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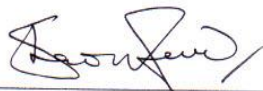
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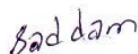
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ABSTRACT

This report discusses my New Horizons internship knowledge, and it's split into four chapters. Chapter One summarizes my completed tasks. Chapter Two provides the background. Chapter Three describes the process I used. Chapter Four discusses the. The internship has been discussed in detail about CCNA and practical work done in my own hands. Here I have learned Router configure, RIP, EIGRP, BGP, ACL, VLAN, etc. This internship has given me the skills to work in hand. I could do the CCNA project and I think I could use this knowledge in my professional life. I can work as a network administrator in my professional life.

TABLE OF CONTENTS

DECLARATION	ii
ACKNOWLEDGEMENT	iii
ABSTRACT.....	iv
LIST OF FIGURES.....	vii
CHAPTER 1 : INTRODUCTION	1
1.1 Introduction	1
CHAPTER 2 : ORGANIZATION.....	3
2.1 About the Organization.....	3
2.2 Branches :	3
2.3 Services:	3
2.4 Delivery Methods :	4
2.5 Learning approaches :	4
CHAPTER 3 : TASK PROJECTS AND ACTIVITIES	5
3.1 NIC	5
3.2 Purpose.....	5
3.3 Types.....	5
3.4 Install fast Ethernet Configuration	6
3.5 Interface Configuration.....	7
3.6 NAT Configuration.....	13
3.7 Static NAT Configuration	18
3.8 Static Routing Configuration	20
3.9 Dynamic Routing Configuration	21
3.10 Inter-VLAN Routing Concept.....	23

3.11 Basic Concept of OSPF and Configuration Figure	24
3.12 Basic Concept of ACL and Configuration Figure	25
3.13 Basic Concept of DHCP and Configuration Figure	26
CHAPTER 4 : COMPETENCIES EARNED	27
4.1 Competencies Earned	27
4.2 Smart plan	27
4.3 Reflections:	27
CHAPTER 5 : CONCLUSION AND FUTURE CAREER	29
5.1 Discussion and Conclusion	29
5.2 Scope for future career	29
REFERENCE	30
APPENDICS	31

LIST OF FIGURES

Figure 1. 1 : Reasons for choose CCNA [2]	1
Figure 3. 1: Block diagram of NIC [5]	6
Figure 3. 2: Home	7
Figure 3. 3 : Select Interface and connection.....	8
Figure 3. 4: Create new connection.....	8
Figure 3. 5: Ethernet wizard	9
Figure 3. 6: Select fast Ethernet	9
Figure 3. 7: Set static IP.....	10
Figure 3. 8: Next hop IP	10
Figure 3. 9 : Finish setting	11
Figure 3. 10: Show status	11
Figure 3. 11 : Select Interface and Connection.....	12
Figure 3. 12 : Confirm IP.....	12
Figure 3. 13 : Create NAT configuration	13
Figure 3. 14: Nat wizard.....	13
Figure 3. 15: IP range	14
Figure 3. 16: Finish Setting	14
Figure 3. 17: Edit NAT configuration	15
Figure 3. 18: Add Address pool.....	15
Figure 3. 19: Select PAT	16
Figure 3. 20: Edit NAT configuration	16
Figure 3. 21: Edit Address translation.....	17
Figure 3. 22: Configure NAT.....	17
Figure 3. 23: Select interface	18
Figure 3. 24:Static NAT configure.....	18
Figure 3. 25 : Select Static NAT	19
Figure 3. 26 : Add IP	19
Figure 3. 27 : Static Router configuration	20
Figure 3. 28 : Set IP.....	20
Figure 3. 29: Showing IP.....	21

Figure 3. 30 : Dynamic Router configuration.....	21
Figure 3. 31 : Edit dynamic routing	22
Figure 3. 32 : Add network.....	22
Figure 3. 33: Enable RIP	22
Figure 3. 34 : Deliver configuration router.....	23
Figure 3. 35 : Inter-VLAN Routing Configuration	24
Figure 3. 36: OSPF Configuration	25
Figure 3. 37 : ACL Configuration.....	26
Figure 3. 38 : DHCP Configuration	26

CHAPTER 1

INTRODUCTION

1.1 Introduction

Computer Networking's most fundamental job is to link individuals to communicate funds. According to World Bank, only 40% of the 7 billion individuals on Earth are linked via the Internet until 2013, where only 9.8% of individuals have high-speed connections[1]. Network engineers are needed to link the remainder of the globe and handle the linked universe. Many large and tiny businesses are hiring network engineers to link or fix their network. Computer networking is a rapidly increasing and difficult sector that can provide a ideal profession for learners. That's why this domain should be joined.

CCNA is a common computer network engineering certification. CCNA is Cisco Certified Network Associate. It involves network technicians, network administrators, network aid engineers and network experts. It is a legitimate accreditation program for all kinds of technologists.

Why choose CCNA?

Is it really worth receiving a CCNA certification for networking experts? The following are factors why a clear Yes is the solution to this issue!

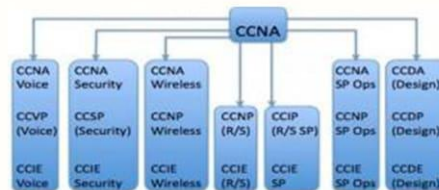


Figure 1. 1 : Reasons for choose CCNA [2]

Most of the world's networking businesses are looking for experts certified by CCNA. Not only does this qualification improve career growth possibilities, it also provides greater salary scale applicants.

By obtaining CCNA certification, technicians not only enhance their skills and knowledge in networking thoughts, but also gain possibilities to enhance their salary ability.

After get train i can able to do Install, Configure and troubleshoot router and switch. Also learn about TCP/IP.

This internship make my skill in networking management. So I can do well in networking management in my future.

Over 1 million CCNA certificates are estimated to have been awarded for the first time.

Goals:

OSI model

IP addressing

WLAN

VLAN

ACL

EIGRP

OSPF

RIP

IP Routing

I can work as :

- Network Professional
- IT help desk
- Technicians
- Networking related job

CHAPTER 2

ORGANIZATION

2.1 About the Organization

As technology changes have increased, mastering innovation is even more essential for people to be efficient, invaluable employees who optimize, program and invent solutions — and even create their own companies.

New Horizons has given industry-leading technical instruction to more than 30 million learners for 35 years, providing the most appropriate and subtle software learning [3]. It is a Microsoft's partner company.

2.2 Branches :

It is worldwide company. In Bangladesh, they have several branches in different locations.

1. Dhanmondi
2. Gulshan
3. Rajshahi

2.3 Services:

New Horizons not only a training company. They provide some services to their customers.

- Desktop Applications
- IT Training
- Business Skills
- Project Management

2.4 Delivery Methods:

They deliver their training in some interactive way for better understanding to the students. These methods is very efficient for learners.

- Classroom
- Online
- Self-Paced
- Mentored

2.5 Learning approaches:

The following approaches they use for training.

- Assess
- Learn
- Reinforce
- Support
- Locations
- Validate

This company awarded for their services. They are awarded for Best Performance Award, Top IT Training Award, Cisco Awards etc. They are awarded by Cisco Award of Excellence for Collaboration, Cisco Partner of the Year, Microsoft Learning Partner of the Year Finalist.

CHAPTER 3

TASK PROJECTS AND ACTIVITIES

3.1 NIC

A Network Interface Card (NIC) is a component of hardware that can not be connected to a laptop without a network. It is a circuit board mounted on a computer that offers a devoted network link to the computer. It is also called the network interface controller, network adapter or LAN[4].

3.2 Purpose

NIC allows connected communication as like wireless communication. NIC allows communication between connected computers on a network via LAN and via IP. NIC is a physical layer and a data connection layer, i.e. it offers adequate computer circuitry to handle the physical layer and some data connection layer.

3.3 Types

Internal Network Cards:

Motherboard has a slot for inserting the network card. Network cables are required to provide access to the network. There are two types of internal network cards. The first type uses the PCI connection, while the second type uses ISA.

External Network Cards:

External NICs are used without the need for an inner NIC in desktops and laptops. External network cards are available in two kinds: wireless and USB-based. Wireless network card placed in the motherboard, no network cable is required to connect to the network. They are helpful for transporting or accessing a cellular message.

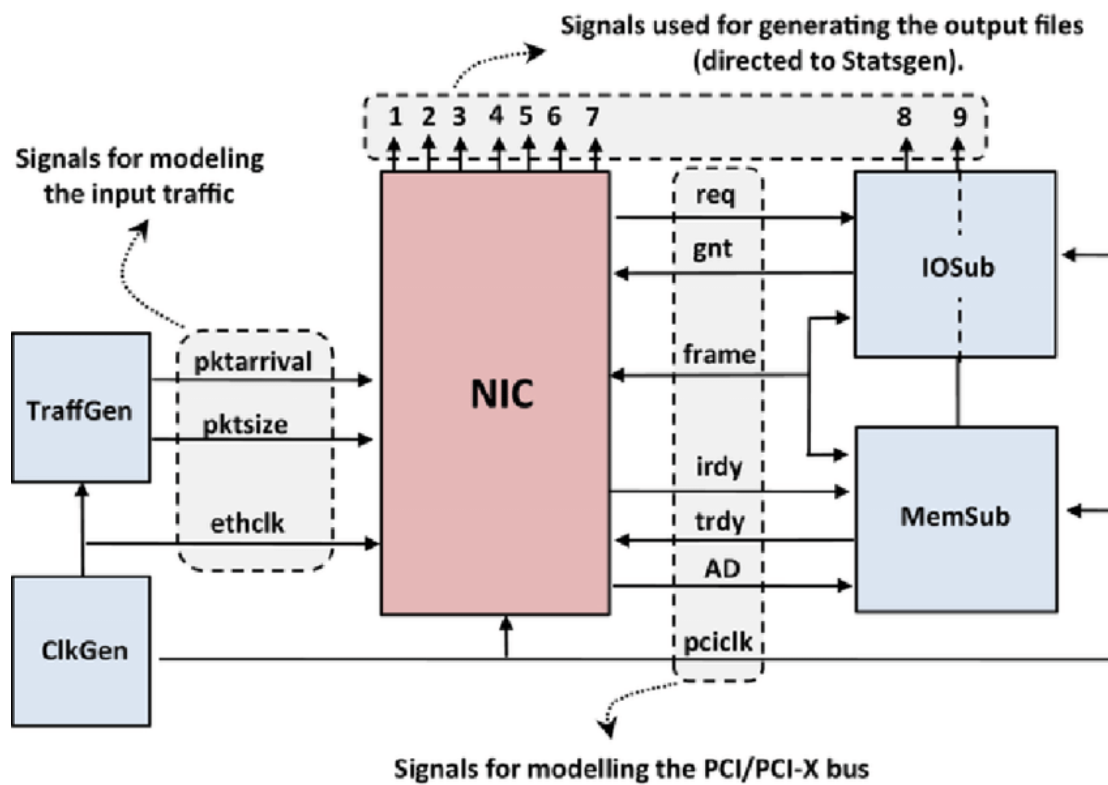


Figure 3. 1: Block diagram of NIC[5]

Components:

- Driver
- MAC address
- Connectivity LED
- Router

3.4 Install fast Ethernet Configuration

```
Router>enable
```

```
Router # configure terminal
```

```
Router(config)# interface fast Ethernet 0/0
```

```
Router(config-if)# ipaddress 192.168.20.1 255.255.255.0
```

```
Router(config-if)# no shut
```

```
Router(config-if)# exit
```

```
Router(config-if)# interface fast Ethernet 0/1
```

```
Router(config-if)# ip address 192.168.10.1 255.255.255.0
```

```
Router(config-if)# no shut
```

```
Router(config-if)# exit
```

3.5 Interface Configuration

Step 1:

Go to home

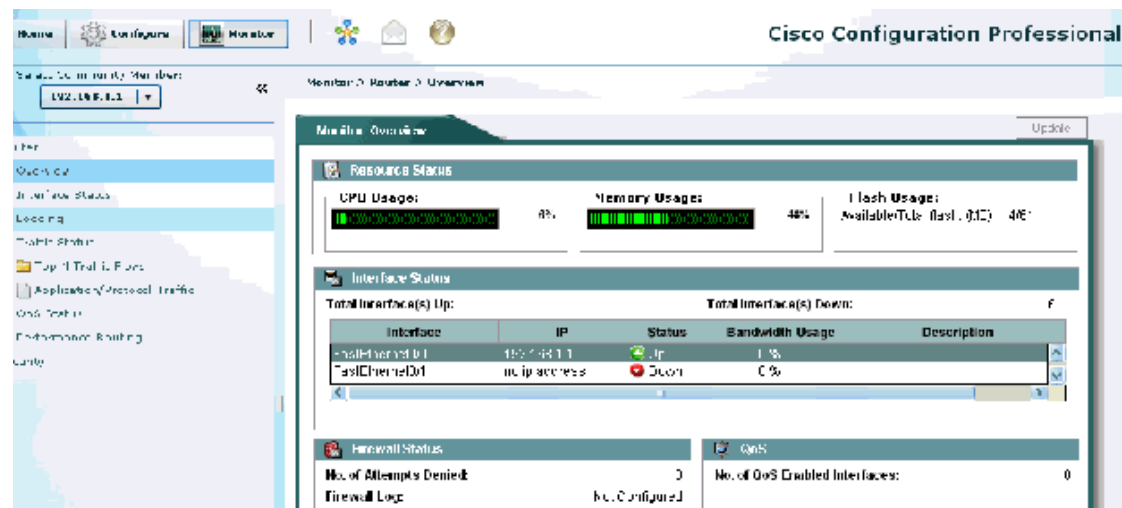


Figure 3. 2Home

Step 2:

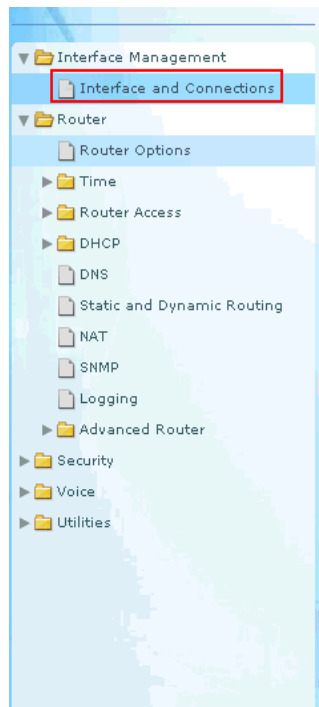


Figure 3. 3 : Select Interface and connection

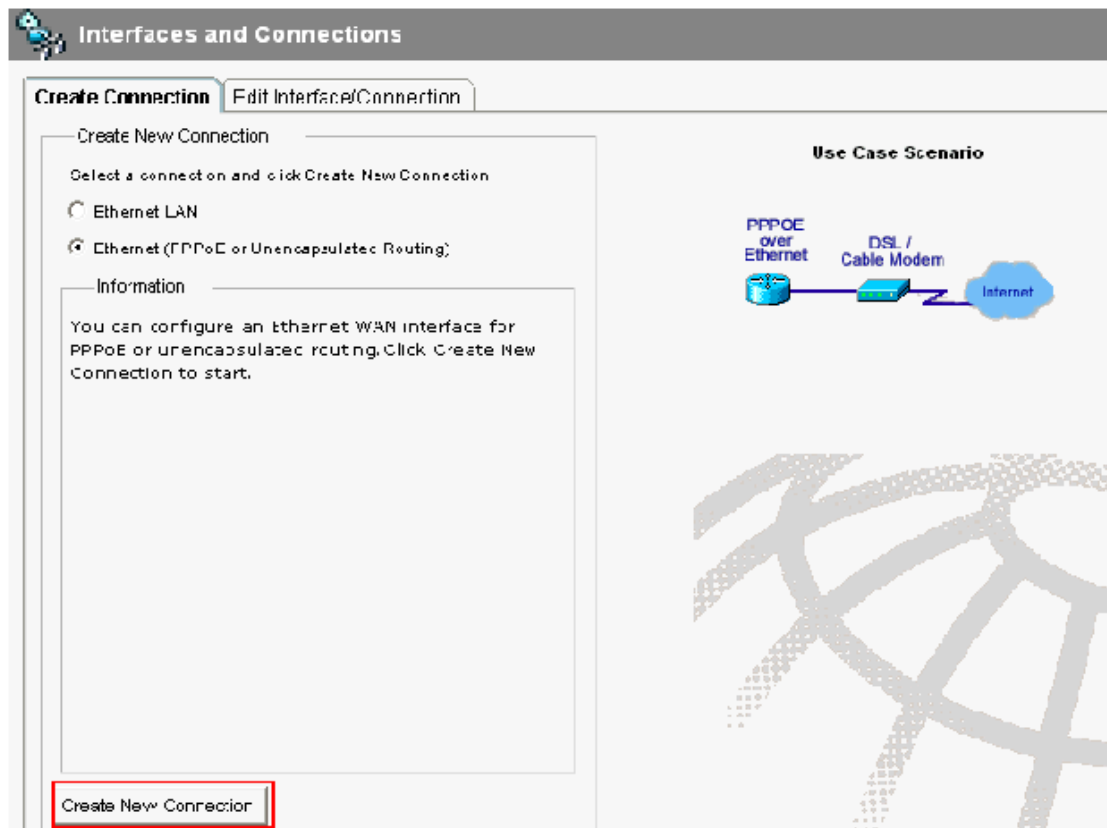


Figure 3. 4: Create new connection

Step 3

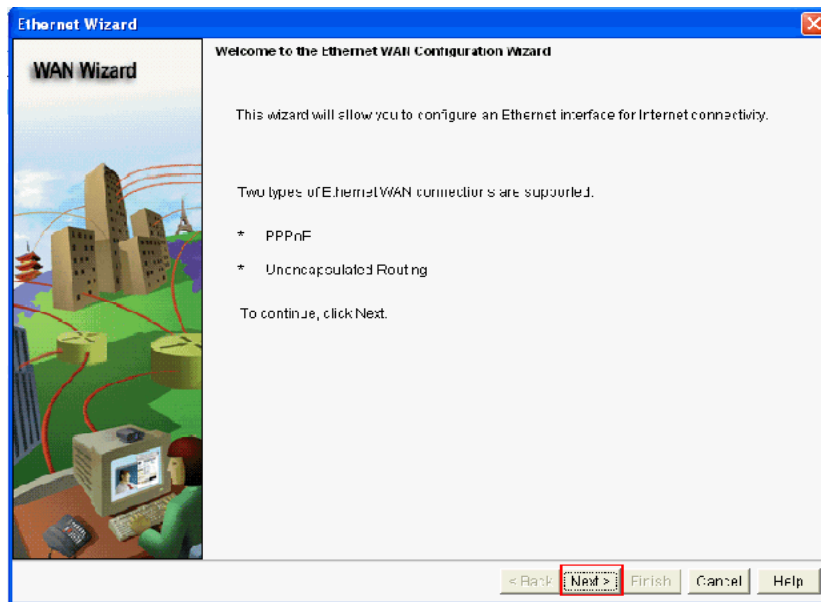


Figure 3. 5: Ethernet wizard

Step 4

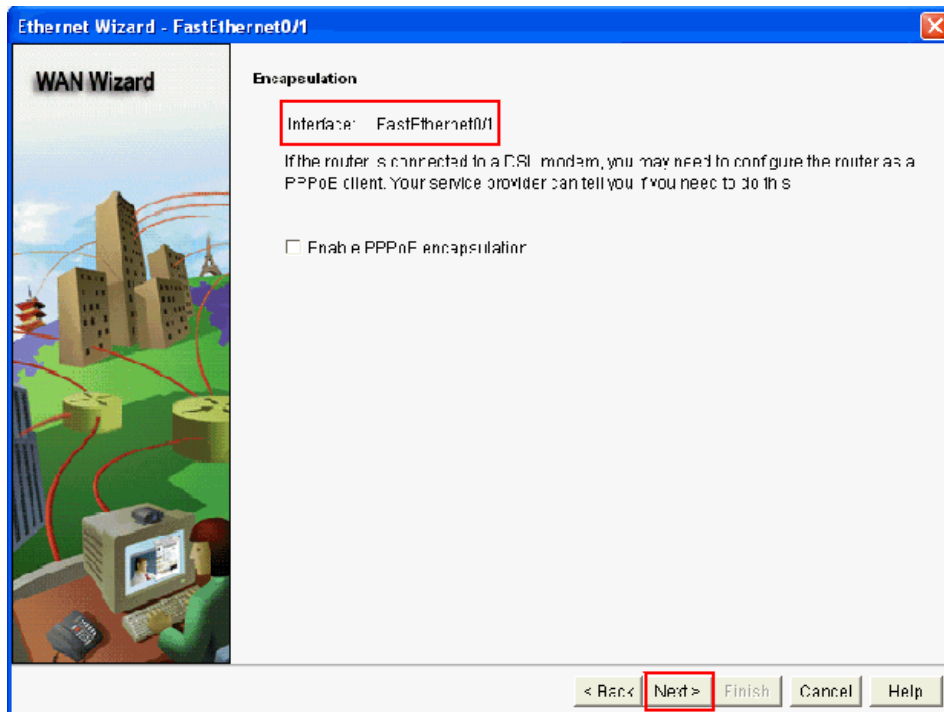


Figure 3. 6: Select fast Ethernet

Step 5

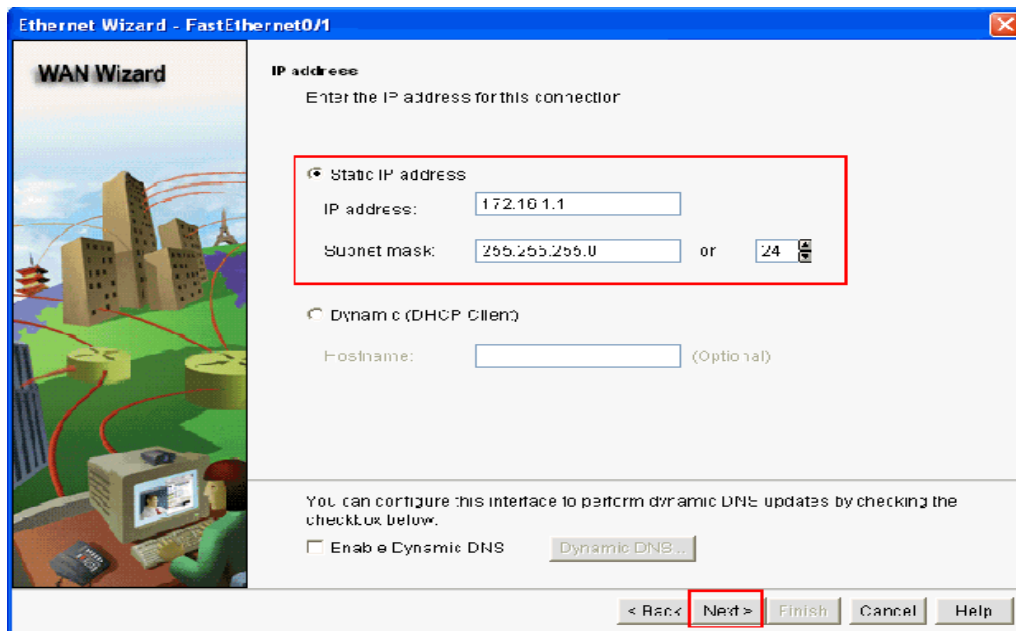


Figure 3. 7: Set static IP

Step 6

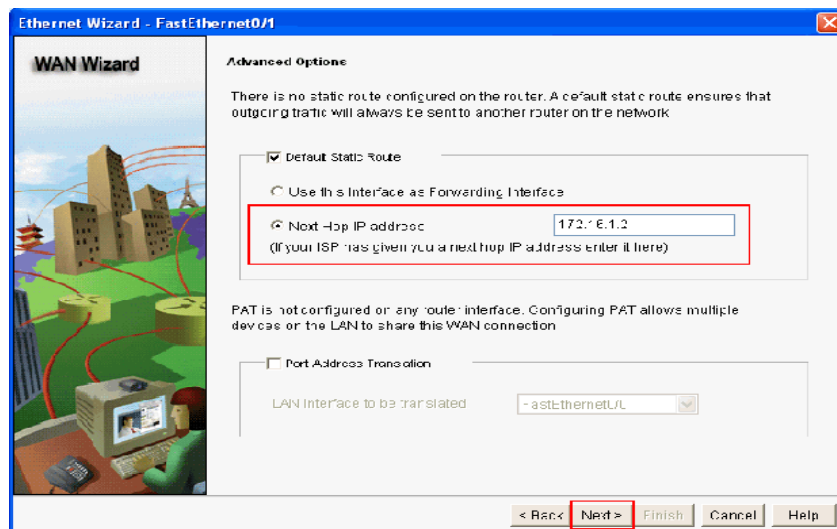


Figure 3. 8: Next hop IP

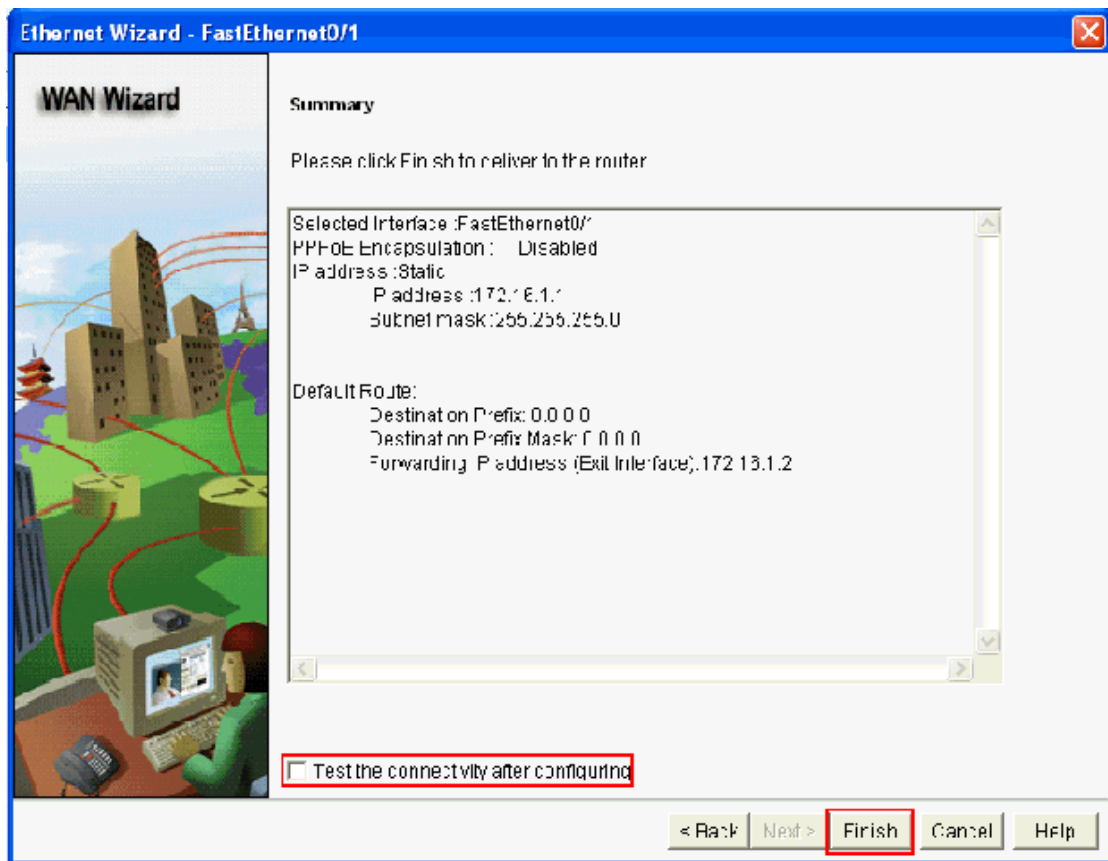


Figure 3. 9 : Finish setting

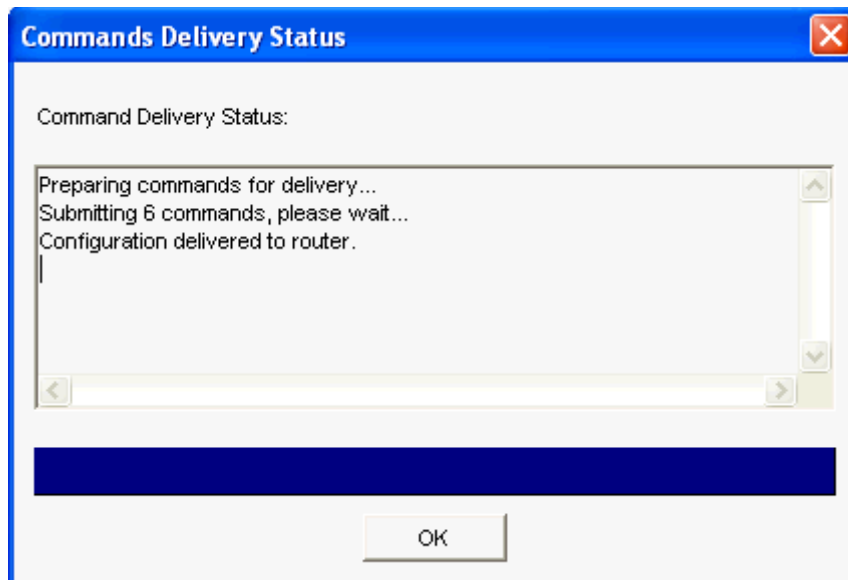


Figure 3. 10: Show status

Step 7

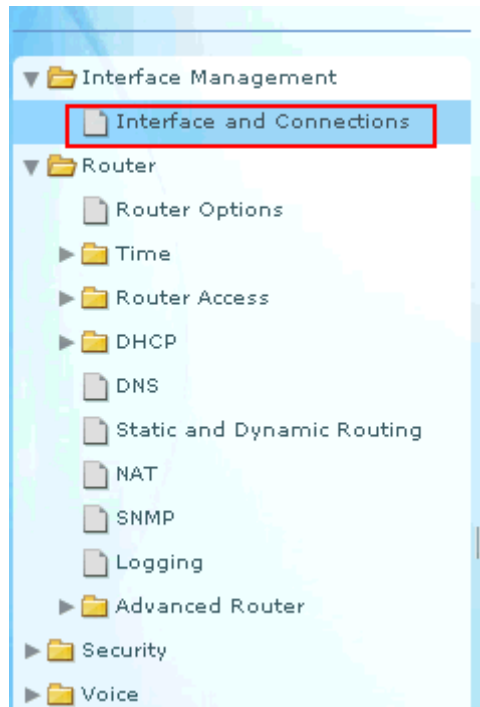


Figure 3. 11 : Select Interface and Connection

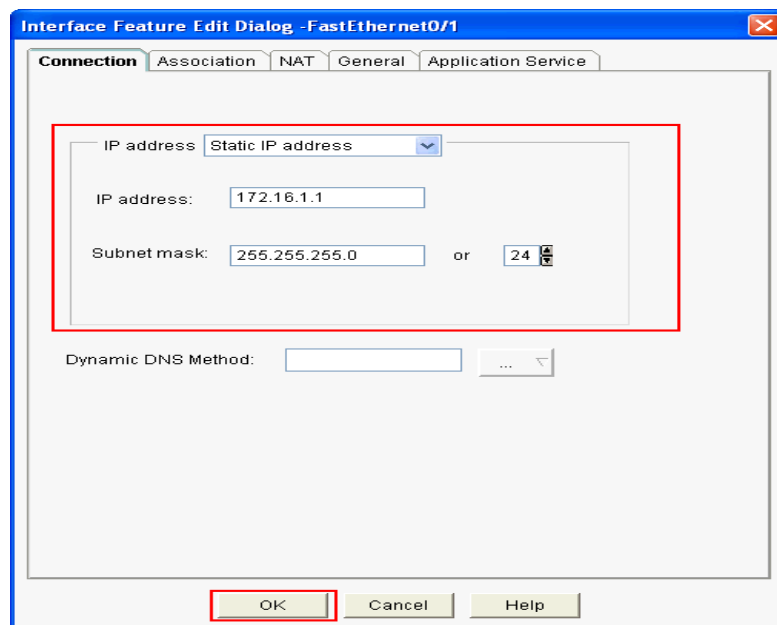


Figure 3. 12 : Confirm IP

3.6 NAT Configuration

Step 1

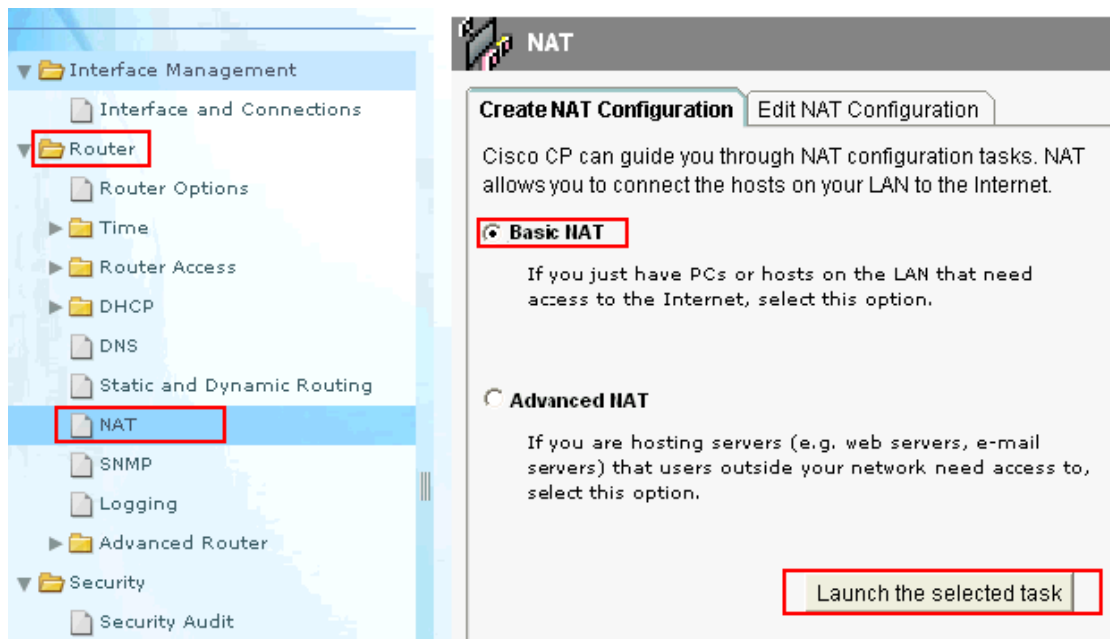


Figure 3. 13 : Create NAT configuration

Step 2

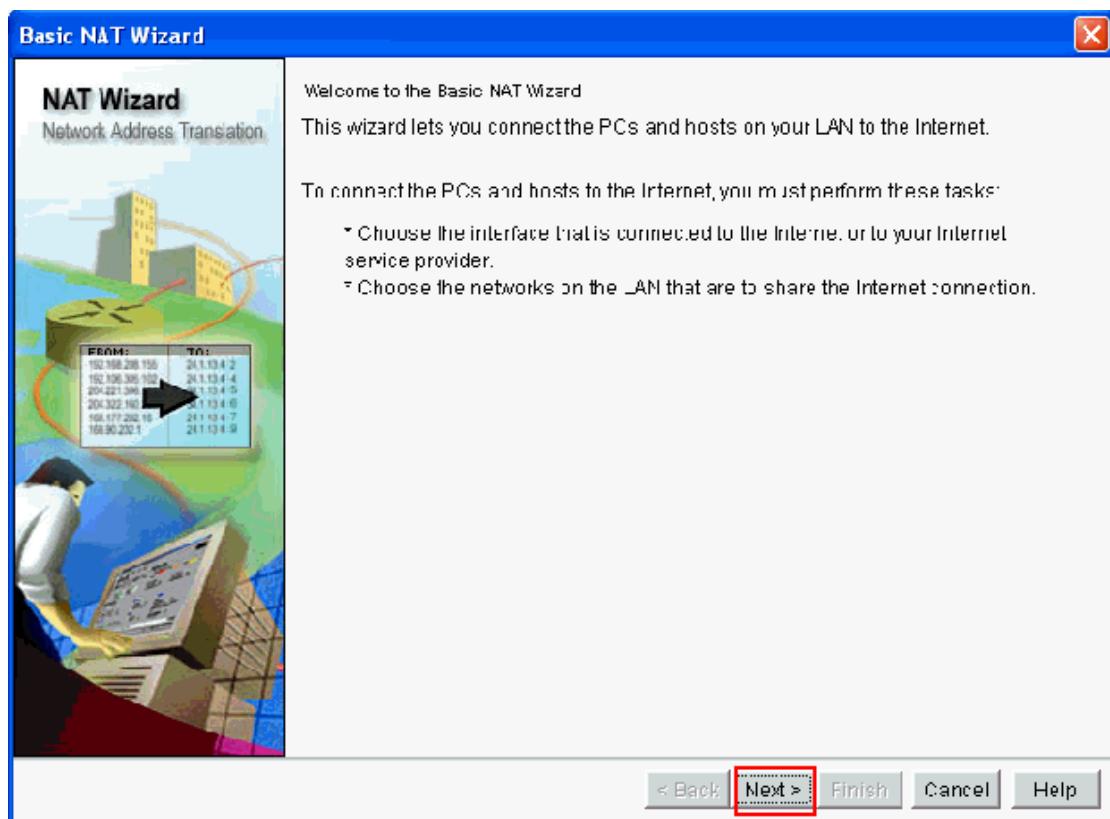


Figure 3. 14: Nat wizard

Step 3

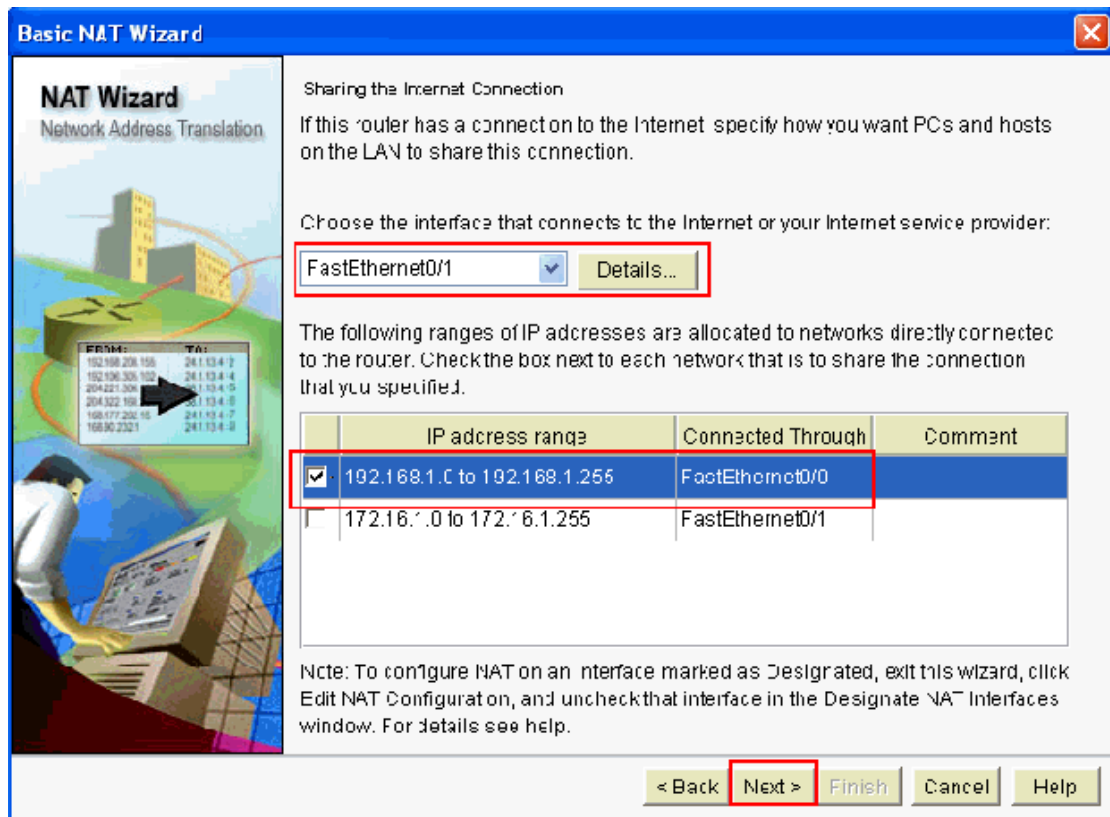


Figure 3. 15: IP range

Step 4

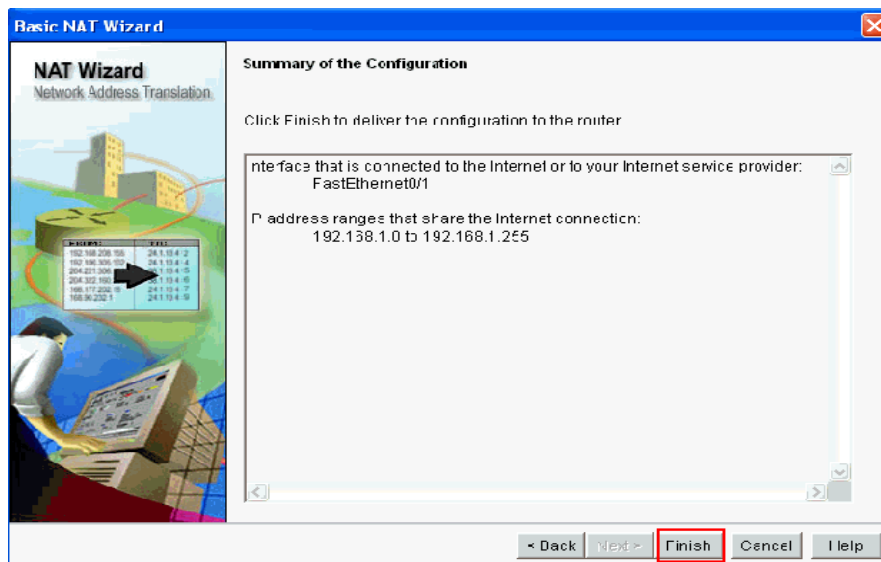


Figure 3. 16: Finish Setting

Step 5

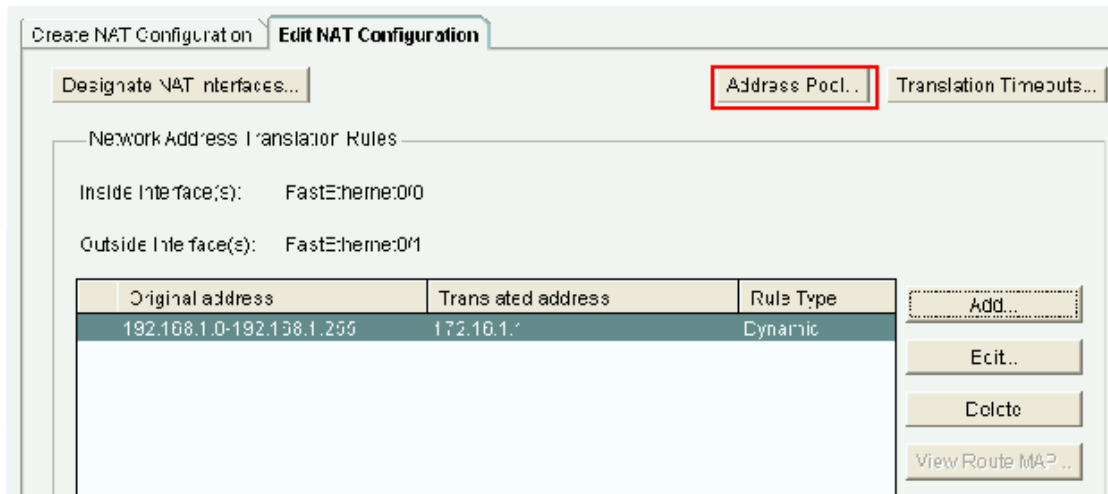


Figure 3. 17: Edit NAT configuration

Step 6

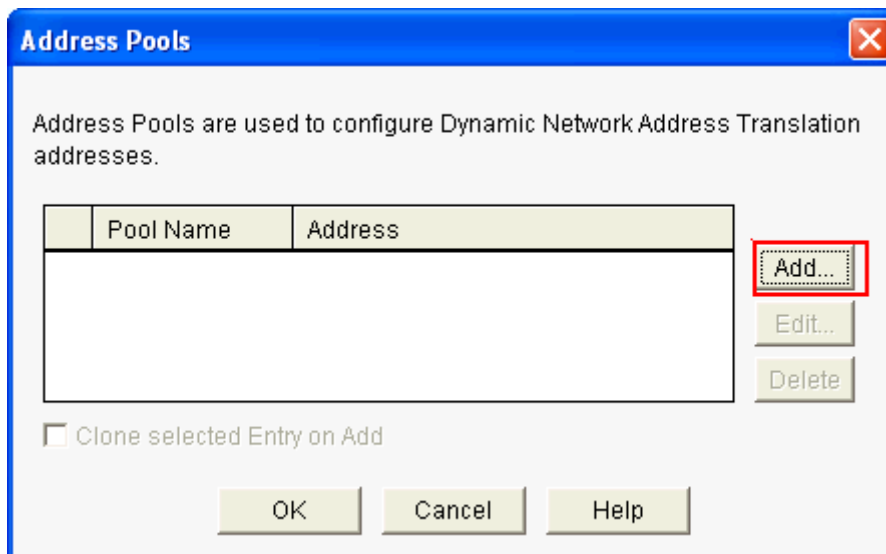


Figure 3. 18: Add Address pool

Step 7

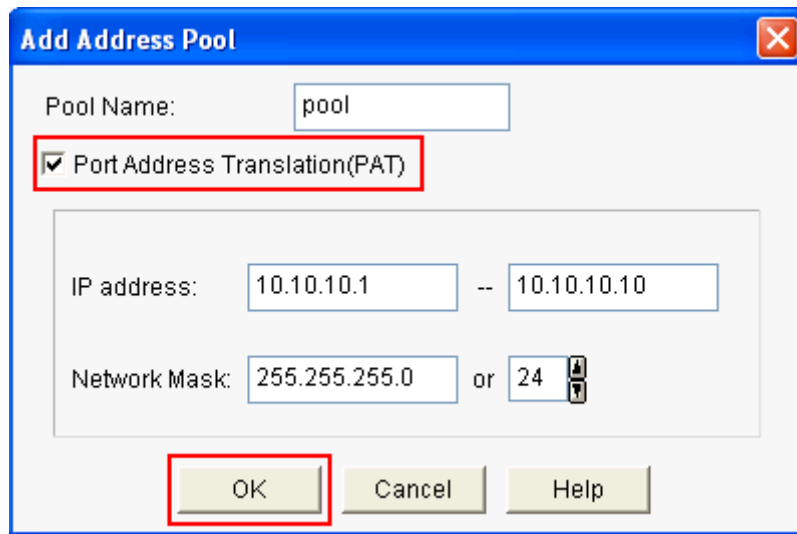


Figure 3. 19: Select PAT

Step 8

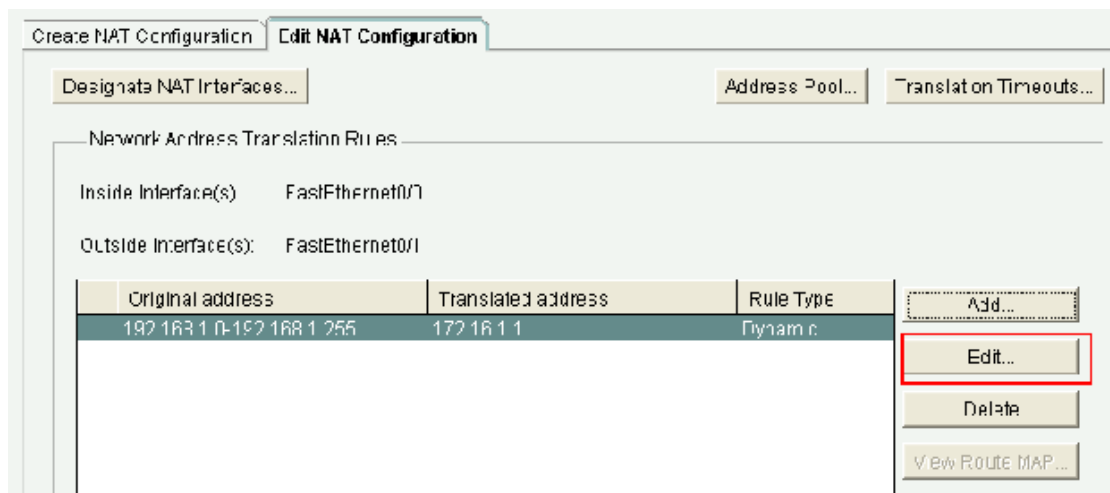


Figure 3. 20: Edit NAT configuration

Step 9

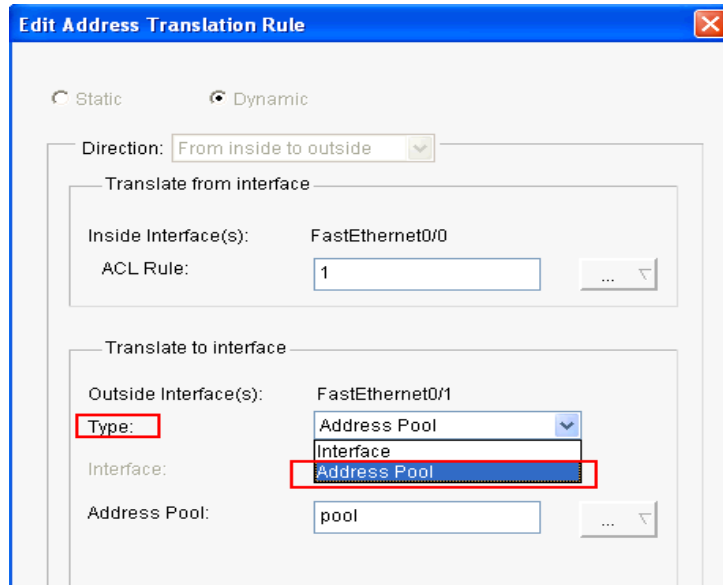


Figure 3. 21: Edit Address translation

Step 10

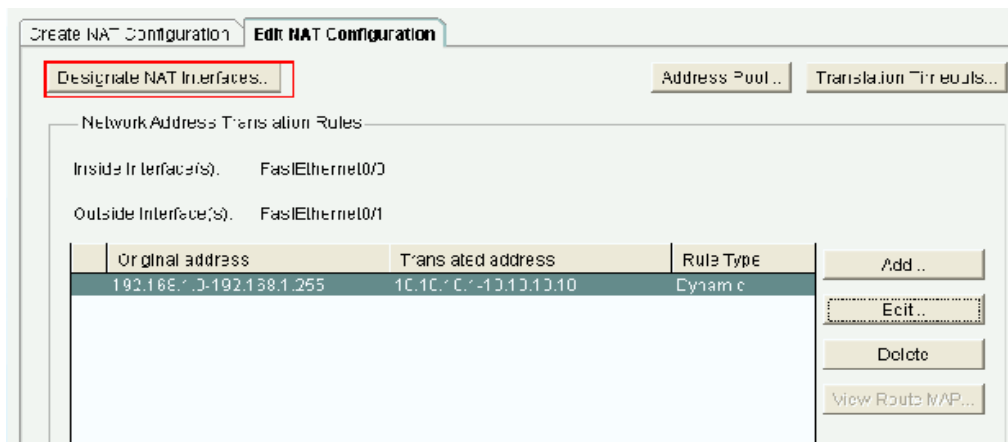


Figure 3. 22: Configure NAT

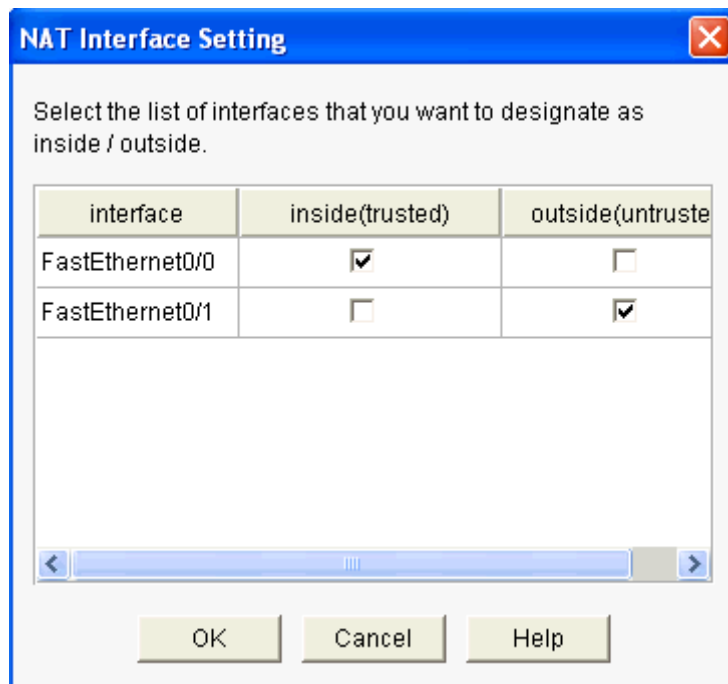


Figure 3. 23: Select interface

3.7 Static NAT Configuration

Step1

1

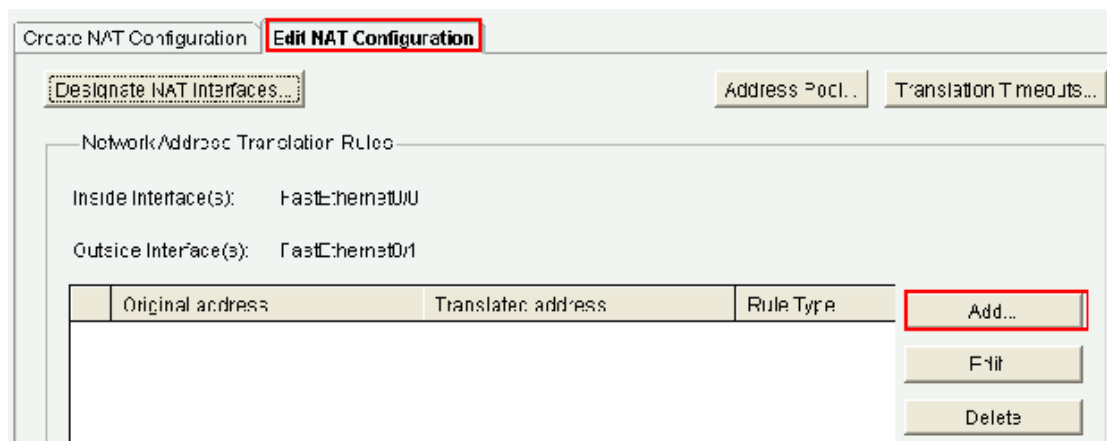


Figure 3. 24:Static NAT configure

Step 2

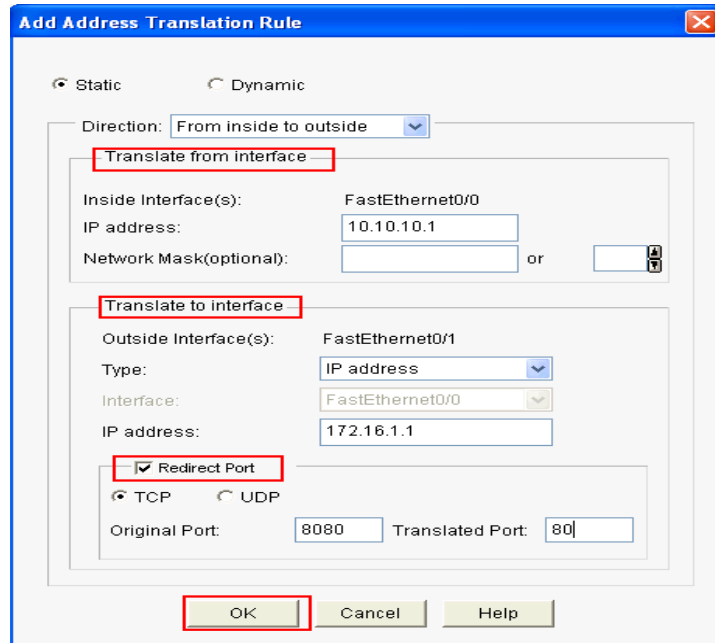


Figure 3. 25 : Select Static NAT

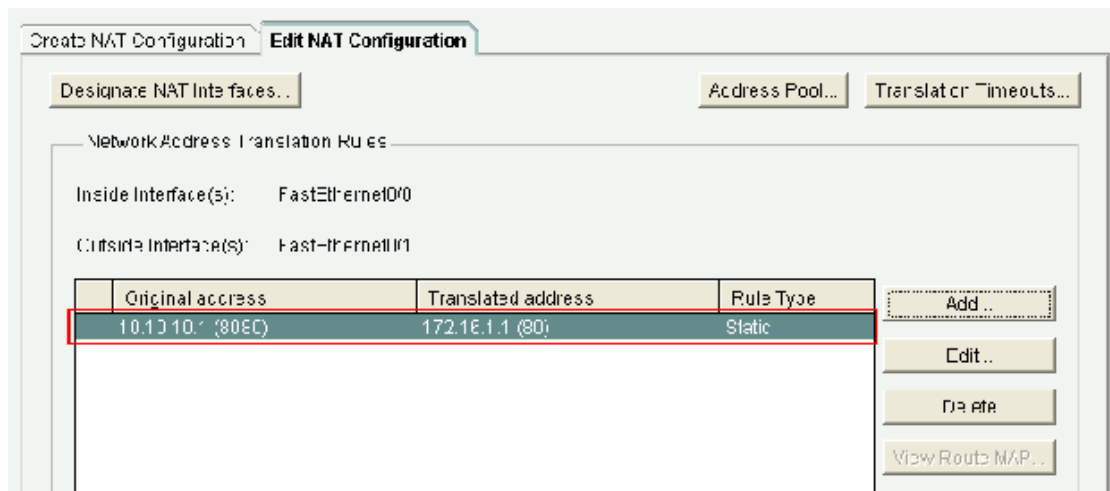


Figure 3. 26 : Add IP

3.8 Static Routing Configuration

Step 1



Figure 3. 27 : Static Router configuration

Step 2

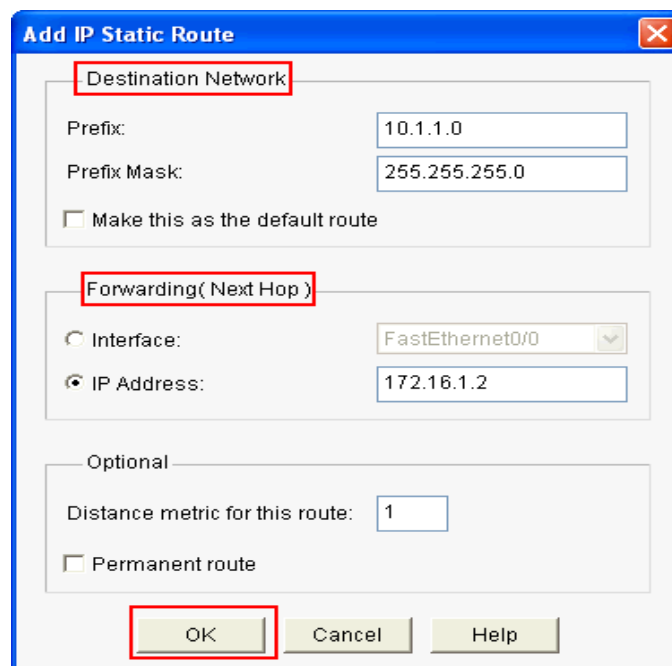


Figure 3. 28 : Set IP

Static Routing					
Destination Network		Forwarding		Optional	
Prefix	Prefix Mask	Interface or IP address	Distance	Permanent Route	Track
10.1.1.0	255.255.255.0	172.16.1.2	1	No	No

Figure 3. 29: Showing IP

3.9 Dynamic Routing Configuration

Step 1

Go: Configure > Router > Static and Dynamic Routing.

Step2

Routing					
Static Routing					
Destination Network		Forwarding		Optional	
Prefix	Prefix Mask	Interface or IP address	Distance	Permanent Route	Track

Dynamic Routing	
term Name	term Value
RIP	Disabled
OSPF	Disabled
EIGRP	Disabled

Figure 3. 30 : Dynamic Router configuration

Step 3

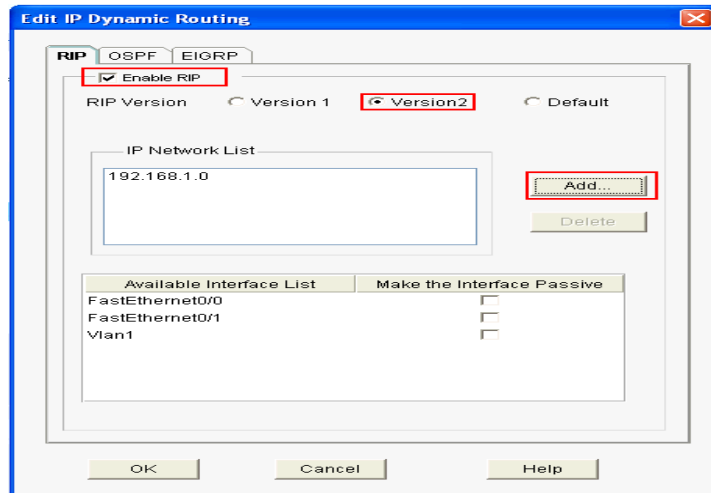


Figure 3. 31 : Edit dynamic routing

Step 4

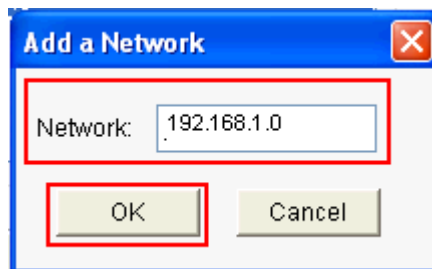


Figure 3. 32 : Add network

Step 5

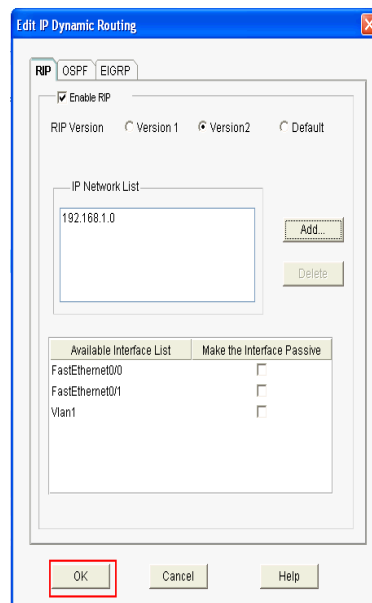


Figure 3. 33: Enable RIP

Step 6

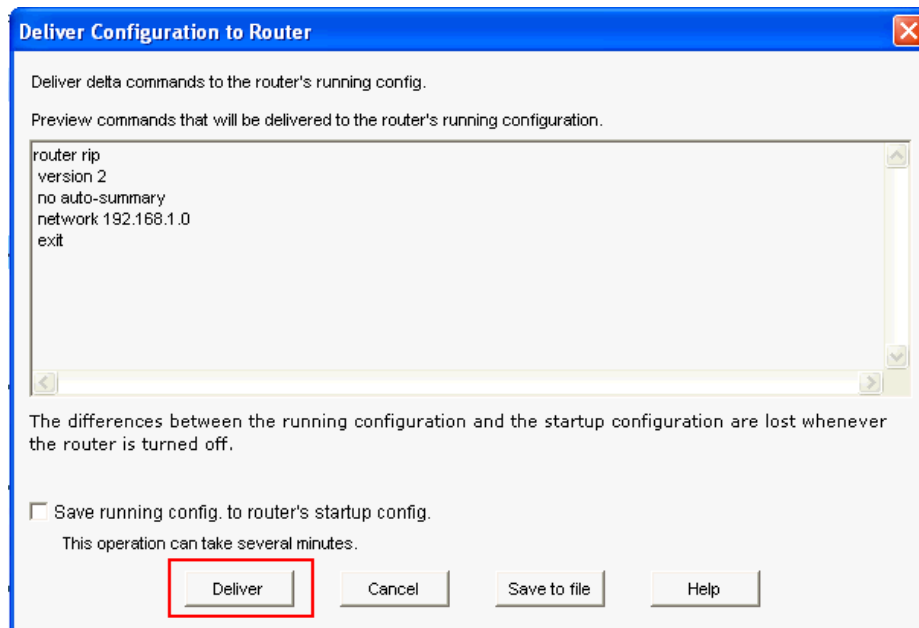


Figure 3. 34 : Deliver configuration router

3.10 Inter-VLAN Routing Concept

Just the same VLAN PCs can impart among themselves on the typical VLAN-based scheme. In any event, it is necessary to talk with VLAN PCs from other VLAN PCs for a variety of purposes on one century assemble. Inter-VLAN routing is also an instrument used correctly to create communication efficient in these VLAN PCs. A method for sending a VLAN operation to another VLAN is between VLAN guiding. An additional Layer 3 gadget, such as Cisco Router, Mikrotik Router, and Linux Based Server and so on, is used due to Inter-VLAN guiding. After completing the vlan configuration, we have to organize Inter vlan along these routes.

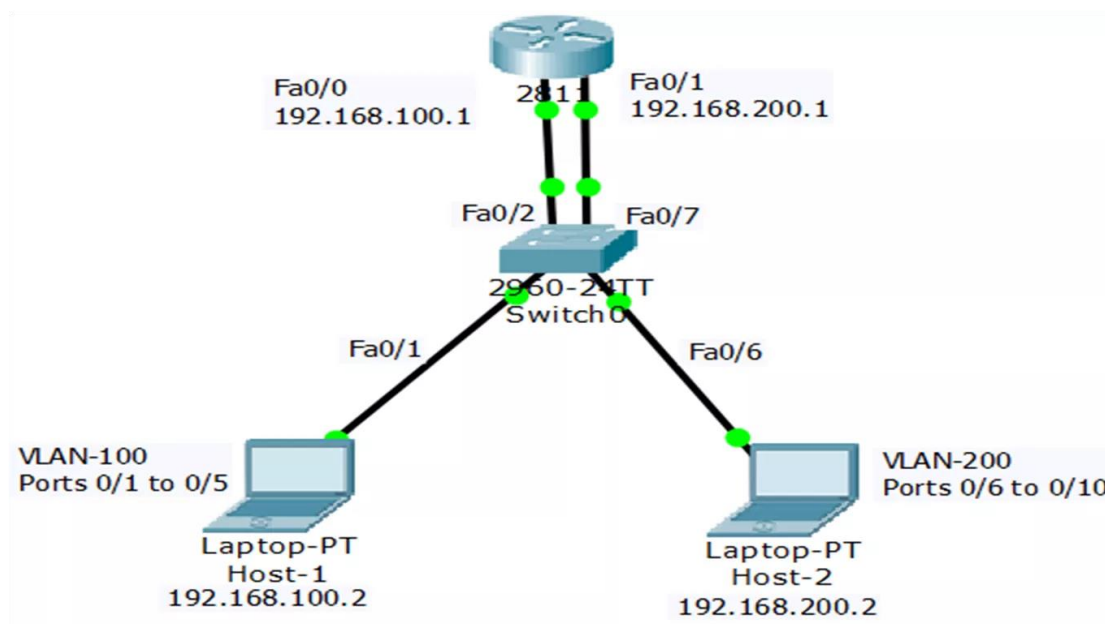


Figure 3. 35 : Inter-VLAN Routing Configuration

3.11 Basic Concept of OSPF and Configuration Figure

The OSPF protocol is a set of IP routing protocols and is an internet interface gateway protocol used for the distribution of IP guiding information throughout an IP organization via a single AS.

The OSPF protocol is a protocol that directs the link state, which means the buttons with their nearest neighbors to trade topology information. Topology information are all over the AS and so the whole photograph of the AS topology is shown in each loop. This picture is then used to determine end-to-end methods through the AS, usually using a calculation variety. Therefore, the previous leap in the context of a Conference State Leadership Convention governed by choosing the finest end-to-end route for the feasible objective to which data is sent.

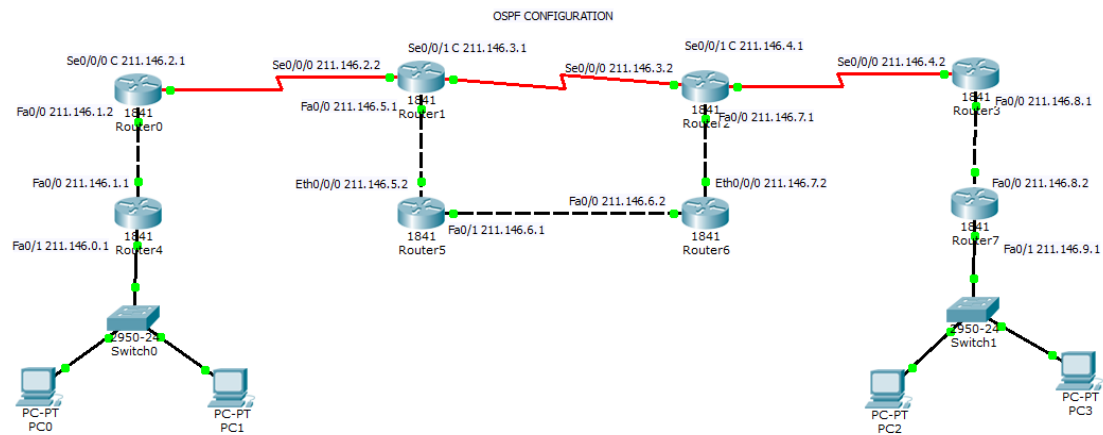


Figure 3. 36: OSPF Configuration

3.12 Basic Concept of ACL and Configuration Figure

ACLs can be designed for all controlled system conventions, such as IP and Internetwork Packet Exchange (IPX). ACLs can be designed to control system or subnet access at the switch. ACLs decide whether steered parcels are sent or disposed of in the light of the conditions indicated in the ACL in order to channel organize movement. If ACLs are not designed on the switch, it will allow all bundles passing through the switch to reach the entire system.

Farthest stage arrange execution of operation and increase. Give command of the stream of motion. Give a motion to the settings of the button is sent or hindered. Check which areas on a scheme a client can enter. Screen drivers allowing or denying entry to a portion of the scheme.

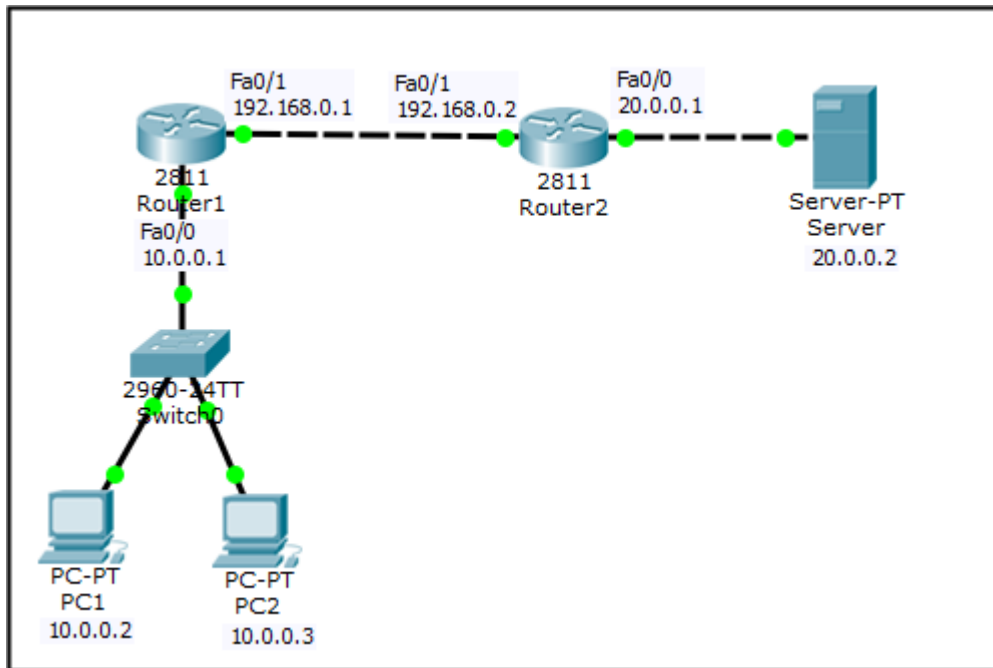


Figure 3. 37 : ACL Configuration

3.13 Basic Concept of DHCP and Configuration Figure

Show the DHCP database. Dynamic Host Design Convention (DHCP) is a scheme protocol that enables a server to relegate an IP delivery to a PC from a defined digit range. The DHCP client requests an IP address by transmitting a DHCPDISCOVER signal to the subnet of the neighborhood. When a DHCP provider responds with a DHCP OFFER signal comprising an IP address and rent-to-customer configuration information, the client is provided an address.

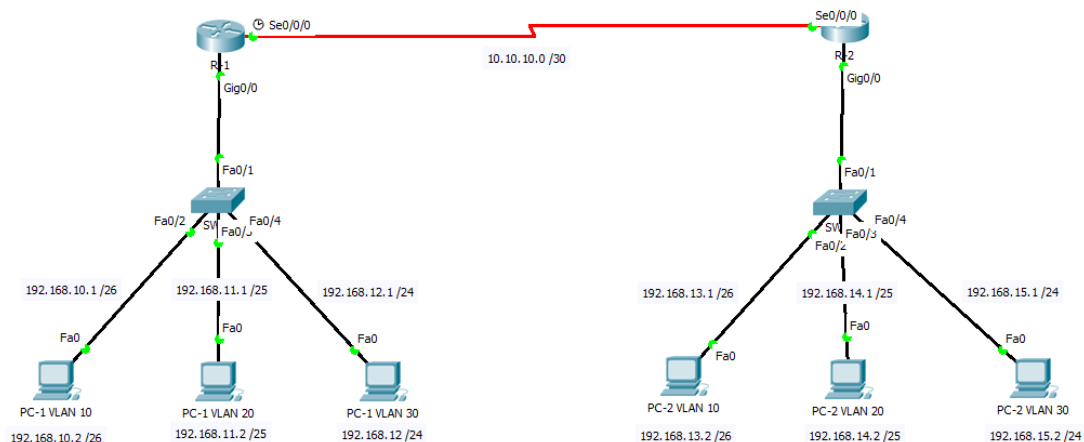


Figure 3. 38 : DHCP Configuration

CHAPTER 4

COMPETENCIES EARNED

4.1 Competencies Earned

What we're doing is changing the technology each day. There is always a development in the telecommunications industry. While we are most probably unable to recommend the daily adjustments while it's moving on, it's easy for us to believe home to the past few months and see that as a significant metric of things. Now we're completely distinct from what we've done before. I usually discover press transmission and network capacity in this brief internship. Media marketing process selects a sensible network development methodology and strategy. The associated strategy breakdown and suggested articles provide a reasonable structure for a transmit communication method.

4.2 Smart plan

After this internship, many scopes opened up for me. I've learned a lot about networking that's going to help my profession. My strategy was pretty easy, I laid up my strategy.

Getting Knowledge of essential background:

I got data about my profession and I wished to know how to network and I'm happy with the knowledge I gained.

Improve my Interpersonal Skills:

I created my ability to communicate with my colleagues. It was difficult to learn how to interact with entrepreneurs, clients, and other technology stakeholders.

Build a Network:

Building communication with network professionals. Getting their understanding. While doing internship, these were all my intentions.

4.3 Reflections:

My career's reflection is noteworthy. I'm not too timid to communicate with others now. I attempted to engage myself in all the arts so I could discover fresh stuff. I've discovered how to run, deploy, configure, and troubleshoot WAN, LAN, and

medium-sized network communication facilities. You will also be fitted with the abilities and knowledge to define various information networks ' technologies.

CHAPTER 5

CONCLUSION AND FUTURE CAREER

5.1 Discussion and Conclusion

As a developing country, Bangladesh's legislature has drawn on some vital job in building the section of information and technology. IT is a enormous step forward for the "Computerized Bangladesh" concept. In any event, when we are introduced to the pragmatic feature as well, it strengthens teaching at that stage and gives us assurance about our understanding. It was a first time participation in a vocation for me— I've been working for the last four months. I tried my utmost to get to know the workforce and to achieve every last concentrate I had discussed. Working other than my leader has helped me think the kind of specialist lives I should be preparing to dive into once I leave my university. The job meeting that I caught up from the Four Months is very crucial to me and in the future I want to implement my newly found data.

5.2 Scope for future career

The goal of this internship situation provides a sensible concept of the internet foundation structure for common sense and semantic. This provisional stance updated a evidence of concept for a fundamental structure of management using imitated teaching. Media transmission Engineering or developing telecommunications is a tremendous area of electronic construction. The job varies from basic device setup to essential mass enhancements; from telecom equipment scheduling, electronic exchange frameworks, copper cell centers, fiber optics to their facilities. A press transmission building is responsible for outlining and handling the creation of hardware and departments for broadcast communications. Currently, the curriculum is phenomenal and has enormous expansion to the point of press transmission design. In the last five years, India has seen notable developments in the telecom portion. If you get additional skills in VLSI and implanted frameworks off opportunity, it will give you more prominent open doors.

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APPENDICS

Introduction

Practice is to know and understand this motion of current truth, apps and implementation of research concepts. This is a degree to operate for the college's understudies and earlier joined the service business organizations in order to understand this current working condition of fact. This is a real closed gate undergraduate first to rectify for the potential operating lives.

Team Work

Practicing the team work is very essential for a personal network. Without stronger team work or synchronization, no stronger service can be given. It is also a question of knowing how to comprehend group participants and how to follow them for the greatest synchronization of job for a stronger synchronization. I worked with the User Infrastructure group and tried my utmost to provide an uninterrupted network assistance service as a part of that squad.

Understanding Responsibilities

Each exercise is accompanied by responsibilities and should be accomplished. My duty as aspect of the User Infrastructure community was to offer the bankers constant scheme support. Do the asset and progress to improve the execution of the job. Face the particular circumstances and monitor the use of skills and specialized assistance.