FINAL YEAR INTERNSHIP ON MIKROTIK ROUTER AND LINUX (OS)

BY

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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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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Nusrat Jahan, Lecturer,** and Department of CSE Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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Finally, we must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

We will mastermind at least two PCs for the connection and records or data, at least in these times. We want to begin up the PC volume and alternate records or facts collectively and then we should call some awesome PC server. The framework has exceptional competencies that are comparable to a precise kind of server. Examples - Static, PPPOAE, Site Square, Tuesday firewall, interface, root, DNS, DHCP, VLAN, NAT, ARP, FTP server and Scaffold. Each of them does the opposite and barring them it is hard to preserve the structure. The framework is probable to be related to the Internet, and we need to defend your information, at which point they want to set up a server the usage of Linux's working framework. The explanation behind the desire of my document is "Server Installation and Configuration ISP (Linux Platform)". The predefined server was advised about SSP usage, server requirements, programming and training of the item, technique of care for the server and direct examination of the server.

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CHAPTER 1 Introduction

1.1 Introduction

When at least two PCs are related and equipped for data or information orchestrate them. We want to start up the PC quantity and exchange data or facts together and then we should call some superb PC server. The framework has special capabilities like one kind of server for instance - Static, PPPOAE, Site Square, Tuesday firewall, interface, route, DNS, DHCP, VLAN, NAT, ARP, FTP server and extension. Each of them does the opposite and besides them it is difficult to hold the structure. If the framework is connected to the Internet and we need to defend your facts then at that factor they need to setup the server the use of Linux's working framework. The purpose of my record is "Server Installation and Configuration ISP (Linux Platform)". The default server was talked about the usage of SSP, server requirements, programming and guidance of the item, dealing with the server and direct testing of the server.

1.2 Motivation

I am presently pursuing my Bachelors in Computer Science Engineering at Daffodil International University. I have come to understand the importance of slowly descending into the world's databases that will complement the getting to know of books barring question, and have the option to function an increasingly whole view on issues. In a meantime operation, I discovered that I was once quietly talented in the Linux framework and server agency and in the best part of Mikrotik. As a Web Provider, I communicated my mind, talked to people, felt their needs, and gave them a greatest company. The potential to grasp and recognize my feelings and act appreciably and rapidly but is noticeable.

1.3 Internship Objectives

My entrance stage quarter software units itself up as a certified to showcase a precise purposeful force application action. Thus, it is deeply compelling in advancing skills. I can existing some top notch features to myself as a skill. Programming quick work nevertheless ability dealing with school work, transferring the device and supporting to growth in the learn about hall.

1.4 Introduction to the Company

I'm a transition manager to get my science ready, future. He has praised himself as one of the Principal ISP Expert Co-ops in Bangladesh. It is one of the most experienced and most steady associations in the discipline of ICT, where its fundamental commercial enterprise ethics identifies customers with long-standing associations, it seems to be a burst of improvement throughout the decade, they are comfy with what they have achieved, and likewise, for the future. Their goals have grown enormously in anxiety.

It may persuade you that May 2000 began their practices in the beforehand thought and during the preceding years of the client's request-as indicated by means of the substantial amplify in their work and the company's portfolio. They work with numerous countrywide corporations and open associations and full choice. They are using the most current advances and are rebuilding the agency that wants it most. Their Corporate Network Solutions division is successful of performing the functions of modern day technological know-how and media transmission structures, with an extensive range of obligatory fixed-trend collections.

1.5 Report Layout

Chapter-1: All inspiration, all the matters are recognized after the internship object. Chapter-2: The target group then covers the SWOT analysis, the organization structure Chapter-3: Featured training, responsible assignments, special kinds of routing setup (DHCP, DNS, brigade, NAT) and Linux fundamental instructions are described. Chapter-4: Smart planning and reflection then completed the competition described. Chapter-5: My record includes conclusions and descriptions of the expert fields of Linux and Mikrotik .

CHAPTER 2 Organization

2.1 Introduction

Security engineering Ltd, I am a transitory commercial enterprise to put together for. Security engineering Limited prides itself on being one of the most basic ISP expert agencies in Bangladesh. This is the best master and most sacred affiliation in the area of ICT. It looks to be a breakthrough of decades of progress, they are blissful in what they have finished and, similarly, their dreams have grown relatively as they have been supported for the future. This might also persuade you that they started out their practice in 2002 the in preceding years they had multiplied their portfolio of work and organizations according to patron proposals and well-timed requests. They work with several national initiatives and open associations and full bias. They are the usage of the most recent advances and are rebuilding the company that wants it most. Their Corporate Network Solutions division is very successful in executing cutting-edge frameworks and media transmission frameworks, with specific capability collection.

2.2 Product and Market Situation

Bangladesh is a talented population, and its cause is to be digitalized by using 2021. In this way, each area of our state and each association be digitalized. Therefore, IT masters and IT specialists will probably need a limitless number of years at any time. So security engineering Limited gauges a fundamental phase of the movement of the quite a number corporations as they like:

- Service Ensuring Internet Service
- Security create
- Creating and Developing Web Site Efficient
- Creating an IT Master with Efficient Training
- Marketing and Communication Nation
- Provides Various Technical Support to Users

- Providing Support
- Developing the Cursor Installation System for Users

So in the end, I can say that security engineering is a significant part of IT based promotion.

2.3 Target Group

Security engineering Ltd. push numerous administrations and their objective gathering is

These are given beneath:

- Multinational Companies and Corporate Houses
- Security Solutions
- Domain Registration and Web Hosting
- Website Development
- Professional Courses and Training
- Open Source Application System
- Internet Expert Co-Opt (ISP)

2.4 SWOT Analysis

SWOT means strengths, weaknesses, opportunities and threats



Figure 2.4.: SWOT process diagram

Qualities are characterized in three specific methods Location, Uniqueness, Management.

Area: Busy midtown territory Uniqueness: Alternative to less expensive food The executives: Wide going for walks aptitude

Summarizing by the absence of capital and the absence of reputation and degree, zone improvement and target show off collections, and subsequently the dangers are the challenges of competition and opening day.

2.5 Organizational Structure

There are a massive number of associations inside our state and there are authoritative structures. There are four types of categorized constructions useful, inspecting the departmental and indispensable structure after that grid as it can speak with extraordinary supervisors for rigorous details and learning. In this way, it is important for people to recognize their work, obligations and employment.

CHAPTER 3 Tasks, Projects and Activities

3.1 Daily Activities

I am a transitory boss to receive my tutor, security engineering Limited. Security engineering Limited has installed itself as one of the most critical ISP professional groups in Bangladesh. It is the most experienced and most settled affiliation in the field of ICT, where its critical business ethic identifies lengthy association with customers. This has created a devastating state of progress for the duration of the decade, they are relaxed with what they have accomplished and have basically improved their outlook for the penalties of a similarly supported interest. It may persuade you that they started their practice in 2002 beforehand in previous years they had expanded their portfolio of work and organizations in accordance to client proposals and time-consuming demands. They work with severa country wide endeavors and open associations and full bias. They are using the most current upgrades and rebuilding the employer the place it is needed. Their Corporate Network Solutions division is gifted at gaining knowledge of present day science and media transmission frameworks that are very useful.

Month to Month Collection Month - The first step I discovered to do in the preliminary month of Daffodil's brief region used to be to work with:

- IP tending to
- Sub-netting
- ISP line design
- Gateway, DNS, NAT, ping
- Interface WAN, LAN
- DHCP Server

Month - 2 Second month of temporary work on daffodil restricted to online I learned and did the following:

- PPPOE
- Bridge
- Queuing, Bandwidth check
- Website blocking, Mangle configure

Month - 3 security engineering Temporary Tasks Last I learned and acquired with Assistant Limited:

- Linux establishment.
- Practicing Linux order.
- Hard disk plate segment.
- Add, Delete, And Lock.
- Utilizing at the board.
- Basic Linux Commands.
- Man, adaptation, history.
- Add client and other consent in a document.

Month – 4 online daffodil online temporary position is restricted to the last I learned

- Various kinds of index information
- Move, alter, bother, Edit, File and registry duplicate check
- Authorization User Group and another.
- Shell Script.
- Managing at command and Backup.

3.2 Events task and Activities

In training, the most essential aspect is that isn't SE does not speak about this problem when it comes to training gifted and experienced trainers. To be the nice educator, the SE holds a fundamental shelter. To start, the contestants will take a seat the essay exam, at which time a meeting will be held. In the end, the applicant ought to supply a 2/3-

Exhibition class, we ought to create human capital to center of attention on our twenty first Century challenge, and education is another standout for creating and struggle segregation. Since its publication, Daffodil Online Ltd has been making an attempt to create new innovations and learn progressive and expert instruction, and to furnish important skills and tools for twenty first Century professional advertising.

Through which we reply to summaries. Lastly, the postulant is chosen or fired. We normally underscore the applicant.

3.3 Project Activities

3.3.1 MikroTik Router

It selling far flung objects and switches. Established 1995, far off innovative marketing share is sold. Throughout the year, there are extra than 5 personnel in the organization, with the organization's gadgets acknowledged for making the least effort on luxurious switches and Ethernet radios.

We 1 соме	to MikroTik Router Softwa	are installation
		, select with 'spacebar'. to install locally or 'q' to
[X] system[X] ppp[X] dhcp[X] dvanced-tools[X] calea[X] gps[X] hotspot	[X] ipu6 [X] isdn [X] kum [X] lcd [X] Hpls [X] Hulticast [X] ntp	[X] routing [X] security [X] ups [X] user-manager [X] wireless [X] wireless-fp
system (depends on nothi Main package with basic		

Figure 3.1: Mikrotik router configuring System

3.3.2 Win-box Interface Menu

We don't have a lot of working in interface menu. Basically, the interfaces menu is used to interface or remark the interface. There are initiative we will identify Ether 1 as Ether 1-WAN which offers a higher appreciation of the Ether 1 WAN association.

	admin	6D 83:DE E9			Keep Passwo Open In New	
	Add/	Set Connect	To RoMON	Connect	Click t	0
Managed Neig	hbors				Conne	-
Refresh]			Find	all	1
MAC Address D4:CA:6D:83:DE	/ E:E9	IP Address // 192.168.88.1	Identity MikroTik	Version 6.42.2 (st.	Board . RB2011UiA	S-2HnD

Figure 3.2: win box display diagram

3.3.3 Static Configuration

At Last whole institution of microcontroller system swap working framework, we without a doubt organize the interface. Given supply passwords virtual computer (generally leave the secret word discipline clear).Interface with WAN process, LAN IP address WAN process, LAN process

- Gateway
- DNS
- NAT
- Ping
- PC IP set
- Ping

Interface WAN, LAN

Firstly, we need to click quick set then click to ether port 1 then declaration either-1 is WAN port

🔏 Quick Set 🔪		Interface Li	ist							
2 CAPsMAN		Interface	Interface List	Ethemet	EoIP Tunnel	IP Tunne	GRE Tunne	VLAN VR	RP Bonding	LTE
Interfaces		.			Detect Int	emet				All III
🚊 Wireless		Nam				Actual MT	U L2 MTU	Тх	Bx	
Bridge			ther1 WAN	Type Ethernet			500 1598	1X	0 bps	0 bp
e PPP			ther2_LAN	Ethernet		1:	500 1598	13	31.5 kbps	11.2 kbp
🕎 Switch			the 2 ther4	Interface	<ether1_wa< td=""><td>N></td><td></td><td></td><td></td><td></td></ether1_wa<>	N>				
⁰t <mark>8</mark> Mesh		el	ther5	General	Ethernet	Loop Prote	ct Overall Sta	ats Rx Stats		
ESS IP	5		ther6 '	1		Name: athe	-1 MAN			ОК
	1		ther8	ě			and the second			Cancel
Routing	Þ	Sec. Sec.	ther9	Ę		Type: Eth	emet			Apply
	N	<i>el <i>sf</i></i>	ther10 fo1	1		MTU: 150	0			
opp of oron		X Ww		Ň	Actual	MTU: 150	0			Disable
Queues		1000 - 110 ANNO 11			12	MTU: 159	0			Comment
Files		•								Torch
Log		+ 12 items (1	selected)	-	Max L2	MTU: 407	4			
🥵 Radius	1			-	MAC Ad	dress: D4:	CA:6D:83:DE:	E8		Cable Test
💥 Tools 🔤						ARP: ena	bled		=	Blink
New Terminal					ARP Tir	11			Re	set MAC Address
🖳 LCD					74.11					Reset Counters

Figure 3.3: WAN setting diagram

We need to click quick set then click to ether port 2 then declaration either-2 is LAN port no

General	Ethemet	Loop F	rotect	Overall Stats	Rx Stats		ОК
		Name:	ether2	2_LAN			Cancel
		Type:	Ethern	net	Apply		
		MTU:	1500				
	Actual MTU		1500			Disable	
	Ľ	2 MTU:	1598			Comment	
	Max L	2 MTU:	4074				Torch
	MAC A	ddress:	D4:CA:6D:83:DE:E9			Cable Test	
		ARP:	enable	ed		Ŧ	Blink
	ARP T	imeout:	-			•	Reset MAC Address
			1				Reset Counters

Figure 3.4: Port No Process diagram

IP address WAN, LAN

IP > Address > Address List > + > Address 10.10.10.120/24 > interface (ether1_WAN)

Bridge				
PPP	ARP			
🕎 Switch	Accounting			
°t [®] Mesh	Addresses			
	Cloud	Address List		
MPLS N	DHCP Client			Find
Routing	DHCP Relay	Address	/ Network	Interface 🗸 🔻
System	DHCP Server			
Queues	DNS		Address	
Files	Firewall	Add	ress: 10.10.10.120/24	ОК
	Hotspot	Netv	work:	Cancel
Log	IPsec	Inter	face: ether1_WAN 🐺	Apply
	Kid Control		./	
10013	Neighbors		K	Disable
New Terminal	Packing		Select ether1_	WAGRImment
LCD	Pool			Сору
	Routes			Remove
Partition		0 items		Remove
📑 Make Supout.rif	SMB	enabl	ed	
Manual	SNMP			

Figure 3.5: IP address showing WAN Port configuration

IP > Address > Address List > + > Address 192.168.0.1/24 > interface (ether2_LAN)

vddress List			[
• - 🖉 💈			Find	×
	/ Network 20/ 10.10.10.0 1/24 192.168.0.0		Interface ether1_WAN ether2_LAN	•
Address <19	2.168.0.1/24>			2
Address:	192.168.0.1/24		ОК	
Network:	192.168.0.0	•	Cancel	
Interface:	ether2_LAN	₹	Apply	
	K		Disable	
Sele	ct ether2_L/	٩N	Comment	
			Сору	
item			Remove	
enabled				

Figure 3.6: LAN Port process diagram

Gateway

Bridge			
PPP	ARP		
🕎 Switch	Accounting		
°t8 Mesh	Addresses	Route List	
91 P	Cloud	Routes Nexthops Rules VRF	
MPLS N	DHCP Client	Find	all 🔻
Routing	DHCP Relay		Source 🔻
System	DHCP Server		0.10.120 68.0.1
Queues	DNS	DAG P 152, 168, 0, 0/24 etnet2_LAW reachable 0 152, 1	66.U. I
Files	Firewall	New Route	
Log	Hotspot	General Attributes	ОК
A Radius	IPsec	Dst. Address: 0.0.0.0/0	Cancel
X Tools	Kid Control	Gateway: 10.10.10.1 ▼	
New Terminal	Neighbors	Gateway: 10.10.10.1	Apply
	Packing	Check Gateway: Gateway IP	Disable
MetaROUTER	Pool	Gateway IP	Comment
Partition	Routes		Сору
Make Supout.rif	SMB	2 Distance:	
Manual Manual	SNMP	Scope: 30	Remove
Sew WinBox	Services	Target Scope: 10	
Exit	Settings	Routing Mark:	8
	Socks		
	TFTP	Pref. Source:	

 $IP > routes > + > Gateway \ 10.10.10.1 > Apply > ok$

Figure 3.7: Gateway connection showing up process design

<u>DNS</u>

Domain name system IP > DNS > server 203.190.10.252

📲 Bridge					
PPP	ARP				
🛫 Switch	Accounting				
°ta Mesh	Addresses				
ESE IP	Cloud	DNS Settings			
MPLS N	DHCP Client		feet the second		-
Routing	DHCP Relay	Servers:	203.190.10.252	\$	ок
System	DHCP Server		8.8.8.8	\$	Cancel
Queues	DNS	Dynamic Servers:			Apply
Files	Firewall		Allow Remote Requ	lests	Static
Log	Hotspot	Max UDP Packet Size:	-		
A Radius	IPsec	Max ODT Tacket Size.	4050		Cache
🔆 Tools	Kid Control	Query Server Timeout:	2.000	s	
New Terminal	Neighbors	Query Total Timeout:	10.000	s	
LCD	Packing				
MetaROUTER	Pool	Max. Concurrent Queries:	100		
Partition	Routes	Max. Concurrent TCP Sessions:	20		
Make Supout.rif	SMB		20.40	Inter	
Manual	SNMP	Cache Size:	And and a second s	КВ	
New WinBox	Services	Cache Max TTL:	7d 00:00:00		
Exit	Settings	Cache Used:	17 KiB		

Figure 3.8: Shows IP DNS setting

NAT

📲 Bridge	-				
PPP	ARP				
🛫 Switch	Accounting	· · · ·			
Ce Mesh	Addresses	Frewall			
👰 IP 💦 🗈	Cloud	Filter Rules_NAT Mangle Raw Serv	vice Ports Connection	ons Address Lists	Layer7 Protocols
MPLS	DHCP Client		Reset Counters 0	Reset All Counter	
Routing	DHCP Relay		Iress Dst. Address		Dst. Port In. Inte
System	DHCP Server		iless Dst. Address	11000 510.1 010	
Queues	DNS	New NAT Rule			
Files	Firewall	Advanced Extra Action	n Statistics	ОК	
Log	Hotspot	Action: masquera	ade 🏉 🔻	Cancel	
Radius	IPsec			Apply	
Tools	Kid Control		 ,		
New Terminal	Neighbors	Log Prefix:	/	Disable	
	Packing	To Ports:	-	Comment	
MetaROUTER	Pool			Сору	
Partition	Routes			Remove	
Make Supout.rif	SMB	Oitems Select ma	squerade	Reset Count	ere
Manual	SNMP	Jerect ma	Squeraue		
New WinBox	Services			Reset All Cou	nters
Exit	Settings				
	Socks				

Network address translation IP > Firewall > NAT > + > Action masquerade

Figure 3.9: NAT finishing display window

Ping

Click to the new terminal after that command ping 8.8.8.8 then press enter command

MPLS	Terminal							
🤹 Routing 🗈 🔰	## 2015	** ** **	** ****	* ***	*** ***	##		
🕃 System 🗈 🚪	MikroTik Rou	terOS 6.42.	.2 (c) 1999	-2018	http://w	ww.mi}	crotik.com	
Queues		222	10 10 1993 00 100	Constant I	17 1000 1212			
Files	[?] command [?]		e list of a					
Log	command [2]	GIVES HEI	up on one c		LIDU UL G	rguillei	165	
Radius	[Tab]	Completes	the comma	nd/word. I	f the inpu	t is a	ambiguous,	
		a second	[Tab] give	s possible	options			
Tools	1	Motte up t	to base lev	e l				
New Terminal 🖡		Move up t		er		• •	ing 8.8.8.8 then	
LCD	/command	Use comma		base level		- ·		
MetaROUTER	[admin@DOL] >	ping 8.8.8.	.8 8			S	nter	
	SEQ HOST				SIZE TTL	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	STATUS	
Partition	0 8.8.8.8				56 119			
Make Supout.rif	1 8.8.8.8				56 119	53555		
Manual	2 8.8.8.8				56 119 56 119			
Manual	and the second sec							
New WinBox	4 8.8.8.8				56 119	Contraction of the second		
Exit	5 8.8.8.8 sent=6 rec	eived=6 pac	cket-loss=0	% min-rtt=	56 119 49ms avg-r		ns max-rtt=50ms	

Figure 3.10: Ping End Display showing

PC IP set

Snap to web affiliation image at that point system placing after that trade connector alternative then Ethernet, Now snap to right fasten then houses and use IP tackle and DNS server tackle.

eneral	
	d automatically if your network supports need to ask your network administrator
🔘 Obtain an IP address auto	matically
Our se the following IP addre	ss:
IP address:	192.168.0.2
Subnet mask:	255.255.255.0
Default gateway:	192.168.0.1
Obtain DNS server addres	s automatically
Use the following DNS ser	
Preferred DNS server:	203 . 190 . 10 . 252
Alternate DNS server:	8.8.8.8
Validate settings upon ex	it Advanced

Figure 3.11: Print getting IP in pc configure

DHCP Server

The DHCP server accommodates both server and purchaser part. DHCP hand-off, DHCP customer, distinct DHCP systems, static and dynamic DHPP arrangements, radio assist tiny swap working frameworks contain DHCP or Dynamic Host Control Protocol.

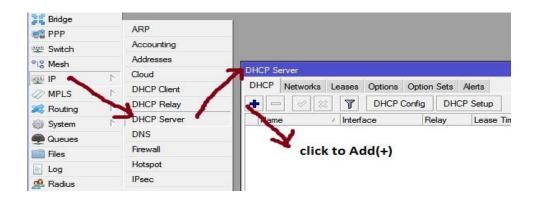


Figure 3.12: DHCP configure Process

DHCP Setup	DHCP Setup
Select interface to run DHCP server on	Select network for DHCP addresses
DHCP Server Interface: ether2_LAN	DHCP Address Space: 192.168.0.0/24
Back Next Cancel	Back Next Cancel
Click toNext	Click toNext

DHCP Setup	DHCP Setup
Select pool of ip addresses given out by DHCP server	Select gateway for given network
Addresses to Give Out: 192.168.0.2-192.168.0.254	Gateway for DHCP Network: 192.168.0.1
Back Next Cancel	Back Next Cancel
Click to Next	V Click toNext

Figure 3.13: Print all process of screen display and successfully DHCP setup

PPPOE

Point-to-Point Protocol over Ethernet first thing in the PPPOE IP then pool then add (+) and create name then given address

Bridge	-	E.			
PPP	ARP				
new Switch	Accounting				
Ca Mesh	Addresses				
型 IP	Cloud	IP Pool			
2 MPLS	DHCP Client	Pools L	Jsed Addresses		
Routing	DHCP Relay			F	ind
💮 System	DHCP Server	Nama	/ Addresses	Next Pool	114
Queues	DNS	宁dhca		none	
Files	Firewall		<u>V</u>	100-00-00	155
Log	Hotspot		New IP Pool		× .
🥵 Radius	IPsec		Name: pppoe_pool	ОК	1
🗶 Tools 🛛 🔿	Kid Control		Addresses: 172.16.10.1-172.16.10.254	Cancel	il
New Terminal	Neighbors				1
	Packing C	reate name		Apply	
	Pool			Comment	
Partition	Routes		putting address	Сору	1
Make Supout.rif	SMB			Remove	1
Manual	SNMP			Tiemove	
	Services	1 item			

Figure 3.14: PPPOE Process diagram

Bridge

The extension can make a good interface. This extension interface empowers to consolidate between at least two physical interfaces or physical and constant interfaces. Name another interface and snap OK. Thus, to make a scaffold association, make some other interface with the given name, click on "connect". At that factor click on the extension tab "+" will open some other window.

Step :1

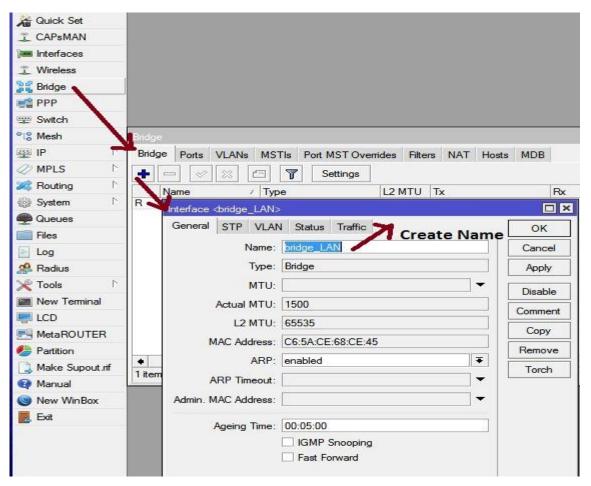


Figure 3.15: BRIDGE processing (1) diagram

	Log
Lund	

Step 3

Step :2

Bridge

#

0 IH

1 IH

2 IH

3 IH

Bridge

Ports

face ttether4

ttether3

ttether5

ttether6

-

7

Bridge

bridge_LAN

bridge_LAN

bridge_LAN

idae LAN

😹 Bridge				
PPP	ARP			
🕎 Switch	Accounting			
ଂଞ୍ଚ Mesh	Addresses	Address List		
😳 IP 💦 🖹	Cloud			비스
MPLS N	DHCP Client	+- ** - 7	Find	
Routing	DHCP Relay	Address / Network 合 10.10.120/ 10.10.10.0	Interface	-
System	DHCP Server	D 🕆 172.168.19.255 172.16.10.254	ether1_WAN <pppoe-numabi></pppoe-numabi>	
Queues	DNS		bridge_LAN	1
Files	Firewall	Address <192.168.0.1/24>		
Log	Hotspot	Address: 192.168.0.1/24	ок	
🧟 Radius	IPsec double			
💥 Tools 🗈 🗅	Kid Control click	132.100.0.0	Cancel	
New Terminal	Neighbors	Interface: bridge_LAN	Apply	
	Packing		Disable	
	Pool	select interface	Comment	
Partition	Routes	select interface		
- unuon	and the second se		Copy	

VLANs MSTIs Port MST Overrides Filters NAT Hosts MDB

Figure 3.16 BRIDGE processing (2) diagram

Horizon Priority (h... Path Cost

click add to

create port 80

80

80

80

Role

Сору

Remove

10 disabled port

10 disabled port

10 disabled port

10 disabled port

Figure 3.17: BRIDGE processing (3) diagram

enabled

3 it

💄 Make Supout.rif

New WinBox

Manual

SMB

SNMP

Services

LINUX

Linux is a work shape made from portions made by way of Linux Torvalds below the University of Helsinki. As a rule, this is obvious to the vast majority of Linux users. This may want to be due to the fact of both the political and the management, it have to be clearer. Linux is a useful machine that is fascinated in the usage of other work structures, Windows, Mac OS, MS-DOS, Solaris and others as a choice to differentiation. There is no application like Linux phrase processor and it is nothing but the format of projects like workplace suites. An interface between the Linux PC / Server device and its continuous operation. Linux Open Source Working Structure, or Linux OS, Unix PC, PC, Netbook, Multiphase and Tablet Devices, PC Game Support, Servers, Supercomputers and Unix Point-of-View Unprotected, Cross-Arranged Effective Systems There is a point off the sky. Linux OS is regularly used as a Linux convention for work zones and servers and helps Linux part (the center of attention of useful framework) and appliances and libraries. Notable Linux OS functions use Centos, Debin, Ubuntu, Fedora, Red Hat, and Express.

Installation Centos diagram

Centos Linux OS version. Setting up facilities for enterprise operating structures depends on the distribution of Linux working systems, RHEL (Red Hat Enterprise Linux), and the most popular Linux distribution for web server structures currently.



Figure 3.18: Centos shows the installation process (1) diagram



Figure 3.19: Centos shows the installation process (2) set time zone setting



Figure 3.20: Show in Centos shows the final process diagram

Creating Linux Partition

Creating Linux in Partition

To install Linux, we need to create root / boot, (/), swap, / home for our partitions in the system.

Root Partition:

There is a root partition where "/" is located on the root partition, where all the files (except boots) are located in the root directory system. Minimum 5 GB HDD space is needed for this system.

Boot Partition: /boot

Parcel Boot (200 MB): The segment mounted on/boot/with the records utilized during the bootstrap procedure contain the working framework portion (which enables your framework to boot Linux). Because of limitations, you should make a nearby ext3 parcel to hold these documents. For most clients, a 200 MB boot segment is adequate.

SWAP Partition: swap

Segment swap is utilized to help virtual memory. In different hands, the information is kept in touch with a swap segment when there isn't sufficient RAM to store the prepared information on your framework. Segment Swap 2 GB virtual RAM for 2 GB of physical RAM, and afterward any sum over 2 GB ought to be equivalent to 1x physical RAM, yet it can't be under 32 MB

/home Partition: /home

Fill the mount point / home and maximum allowed size in the system

Device	Size (MB)	Mount Point/ RAID/Volume	Туре	Format		
✓ LVM Volume Groups						
	204596					
LogVol01	2048		swap	\checkmark		
LogVol00	100000	1	ext4	\checkmark		
LogVol02	102548	/home	ext4	\checkmark		
マ sda (/dev/sda)						
sdal	200	/boot	ext4	\checkmark		
sda2	204599	VolGroup	physical volume (LVM)	\checkmark		
			Create	Edit	Delete	Reset

Figure 3.21: Partition diagram Process

Files and Directories

Collection of registries and / or a range of indexes. Since an index can do.

At the off-chance of a number indicators, we get a registry system. The pinnacle degree of control

Unique catalog archives and indexes can be named away. Unique registries are recognized / assigned to different catalogs through the way.

The way can be indicated by means of the body title / by man or woman information separated through a record. When the event is an indicator, the route can quit with a /.

Flat out way index starts off evolved with order direction and name registry or under documentation. For example: / and then / hostname specifies the hostname of the report above in the principal index of the original article.

User login and Terminal Interface

CentOS release 6.4 (Final)	
Numabi	
Password:	
Cancel Log In	

Figure 3.22: User's login page print diagram of Centos

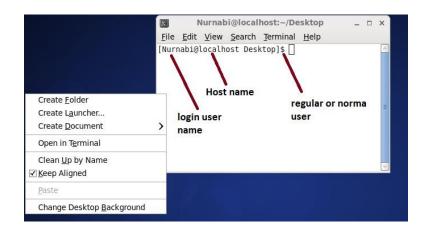


Figure 3.23: Terminal diagram Process

FTP Server (File Transfer Protocol) criteria

Record Transfer Protocol (FTP) is a well-known framework exhibit that starts off evolved with a large team of PC archives and is later used to pay for the following host in a TCP based totally framework. For example, the internet is a primary gadget with an FTP server. FTP depends on server designing and makes use of discrete manipulate and reporting relationships between customers and servers. FTP customers can affirm themselves through the use of a customer title and a non-mysterious substance sign as a mystery word, yet the server can secretly form however interface anonymously. Secure ailments that make sure consumer name and classification and encoded posts, are included by means of FTP.

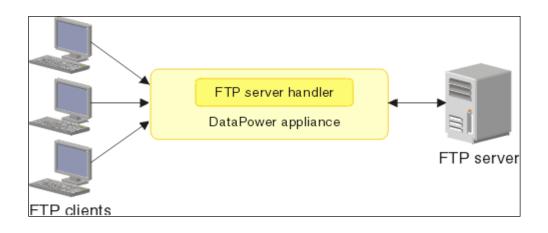


Figure 3.24: Basic Network with FTP Server diagram

3.4 Challenges

It's challenging to assume of becoming a member of your company as a strong physique that can be republished. For the sake of brevity, this area is probable to take great initiatives involved in the workplace, and they can be tried later and decide how the structure ought to look. Short territory without their personal borders! I'm going to cover a few issues with many assist fighters.

The interns may face the following challenges as given below:

- Join gaps in work gaps
- Ability to attain some measures
- Compare authorities' modesty and quality.
- Establish relationships with approval
- Self-View Offensive Operations Specialist
- Receive some rewards from the company.
- Use canned dialect with authority for matching. No.
- Publish relevant levels to purchasers of exceptional levels.
- Keep positive and cool to the client's convenience. Problems add above.

Finally, all the fitness issues want to be dealt with above connected problems. Finally, we can say that if you do now not have any tests, you will succeed No Along these lines, in the technique of your enrichment, the machine will be taken severely in each of our testing systems.

CHAPTER 4

Competencies and Smart Plan

4.1 Competencies Earned

Framework, Linux trouble and clear issues in the direction of the end of riding understanding. Because of the stipulations that dictate the terms, we can only introduce something new. I be given the Linux mannequin the framework mannequin will offer a response that will be extended later or later. Great utility of top class carbide stop plant and rotary cutting machine maker. Drama: Discover about countrywide security thru college, existence science, based, top notch Linux assemblies, server and bar collector answering structures, primary development strategies.

4.2 Smart Planning

The end result of a coaching is to exhibit one strategy, relying on what comes in one understudy, and the different has the power to get it or do it. For example, for each presentation and extraction of datacenter systems and server machines, lead to spending some portion of Linux programming capabilities, for example, coordination of LDAP HA, yield check programs, coordination of everlasting and subject positioning, coordination, and the renovation of many novel public coaching results at the Office of the Student Association. Is done: Standing function to collect the kind of interest. Take part in the Linux web site rundown. Outcomes Test results and programming and redesign structure design; Test for mastermind, orchestral and employer administration choices. What is more, the guidance persistently gives results, temporary work on website online supervisor's hierarchical techniques and procedures.

4.3 Reflections

Your short position can be restored, whilst recognizing that joining an advertising and marketing organization as a helper is miles ahead. Nevertheless, short responsibilities can be essential to the surroundings round which they are in a position to study, and you have to determine how the technique will be found. Temporary quarter except their personal obstacles! I'm going to cover some troubles with many help fighters. Finally, we have been capable to say that if now not monitored once, there is no success. Similarly at these ends, within your technique of enrichment, each of our assessments can be taken critically. security engineering Ltd started they are movement in the year 1996. In the midst of the earlier years, they extended they are action and organization portfolio according to the customer's proposition and contemplating solicitations of time. They worked with various national endeavors and all inclusive affiliations and achieved the reputation. They are using the latest advancements and refreshing the organizations wherever it is required. They are Corporate Network Solution division is capable to give state of-workmanship framework and media transmission game plans with a significantly compelling particular authority gathering

CHAPTER 5 Conclusion and Future Career plan

5.1 Conclusion

The reason of this short work is to extend and create ISP setup and administration on the Linux platform. Access-level role facilities provide primary data communication, Linux requirements, Linux computing device administration and develop community settings and more, but are definitely unfastened due to the complete management. It's all about the styles of machine benefits, net server programs, telnet, sss, ftp, dns, mail, and more. With the intervention, there may be a very top probability to find out about Linux framework programming. Since the source code is handy to us and tenet and co-average machines, we can do some searching. Different components of Linux had been created as experimental or entrepreneurial features, for example, post-graduate. Fully integrated, Vision UNIX Working Framework, a giant range of non-stop communication programming in assist of the Linux Elite Machine Administration, optimizes Linux programming, making it a minimal effort, stable, bed-less processing stage appropriate for the organization's server state. These complete hand-courses will help you test and adapt the find out about server's functions, management, and controls for managing challenge-based gadgets. Larger Components analyze how to existing your extras with contemporary papers, replace programming elements, and amplify server security. Linux OS is a beneficial framework that offers effective output, sturdy and powerful authentication for profitable management. We no longer make selections on this fantastic framework

5.2 Scope for Future Career

Within a quick size of this short work initiative, I automatically run Poor Linux on Pupa Linux to put into effect future automation of Computerized Auto Completion Extensions in SOS Linux. Giving Diploma Initiatives / Tasks and Schedule Gauge. In these situations, there may additionally be net get entry to devices, for example, a net application and a digital mail sponsor that enable customers to take a shot on the Internet without having the quintessential infrastructure for their devices - whether or not or now not Windows matters. In the meantime, the Linux Multi Perus Net Gadget (MIDS) will be displayed. Impression gadgets, for example, cellular smartphones and PDAs, and unique netbook gadgets - small laptop computer right gadgets, a small section of their larger partner's core benefits, the extra advantageous Bundle Linux, an great and big work structure that you can find out about with getting to understand support, And hinting at a rookie to begin going for walks with Linux. I am capable to get better it and perhaps it is in a position to make it even a lot less tough. There is no flaw in representing special authorities in positive programming dialects, then again it does no longer allow you to be symbolic of it. What is the Linux Programmer and Engineering Painting Discipline? What is the preferred method of getting a passing job in the beginning?? Computers and Notice Pad Laptop Framework releases Bios Linux, which allows clients to launch their laptop in seconds.

REFERENCES

- [1] All information about Linux System:
 System:<<<http://www.webopedia.com/TERM/L/linux_os.html >> visit this site
 22th April 2019 at 03:00pm.
- [2] Linux System installation, Partition, Basic command, Shell and kernel, group System:<<hr/>http://www.placementprofession.com/2011/09/linux-interviewquestion.html>> visit this site 10th July 2019 at 11:45pm.
- [3] About SE available info at: << http://www.daffodilnet.com/ >> visit this site 10nd august 2019 at 9:30pm.
- [4] About Planning the installation centos linusx system.
 https://www.howtoforge.com/tutorial/centos-7-minimal-server/ >> last access on September 2019 at 10:00 pm.

Appendices

Appendix A: Internship Reflection

I would possibly assurance that every assistant is given a great activity to give a invulnerable working condition, efficient progress. UNIX shell and Linux server recognition common hook up with open-source commercial enterprise agency open-speak the Linux working framework is an open supply running framework. In truth, Linux's artwork shape is used for server layout. Theoretically, Linux is visible as the simplest, adaptable, effective server-primarily based totally capability. My rationale is to existing a impenetrable workplace. Study the servers of the Linux business enterprise from the server, we can communicate about the motive of working on transient artwork and make an association. Today, most of the sources use the Linux sports activities framework. Framework globally.

Appendix B: Company Detail

Security Engineering LTD.

Head Office Address: House -26 {GF} Road No – 02, Section – 12, Uttara, Dhaka – 1230. Hot-Line: 01766136166, 01813136166. Email: <u>security.eng.bd@gmail.com</u> 11/27/2019

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