Network Design & Management (IE 3010)

3rd Year, 1st Semester

Assignment

Mail Server/Client Management

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1 DHCP Configuration

1.1 Install and configure DHCP in Server machine

1.1.1 Install DHCP for configuration

```
# yum install dhcp
```

figure 1.1 :   Update OS

1.1.2 configuration by nmtui

```
# nmtui
```

figure 1.2 :   Install DHCP

1.1.3 Select Edit a connection

```
┤ NetworkManager TUI ├

Please select an option

Edit a connection
Activate a connection
Set system hostname

Quit

                    <OK>
```
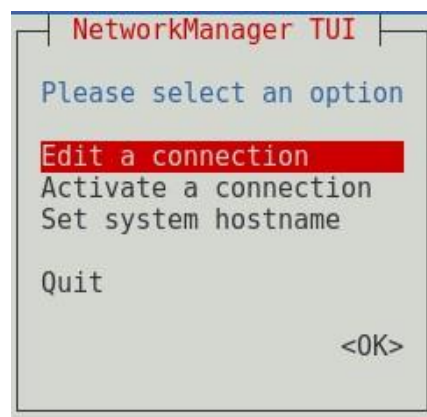
figure 1.3 :   Install DHCP

1.1.4 Edit Wired connection 1 with Automatic IP configuration
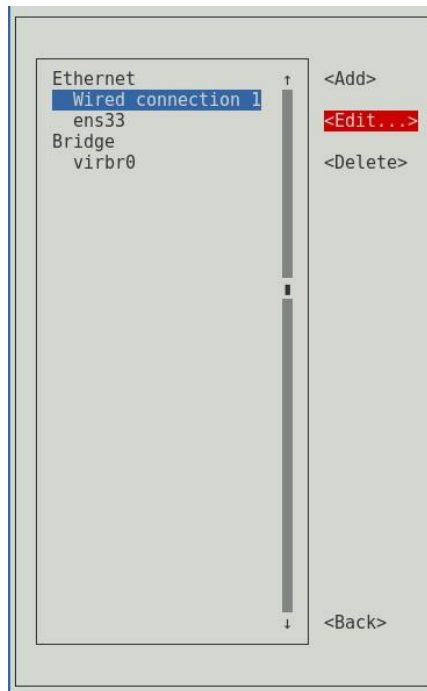

figure 1.4 :   Edit Wired connection 1
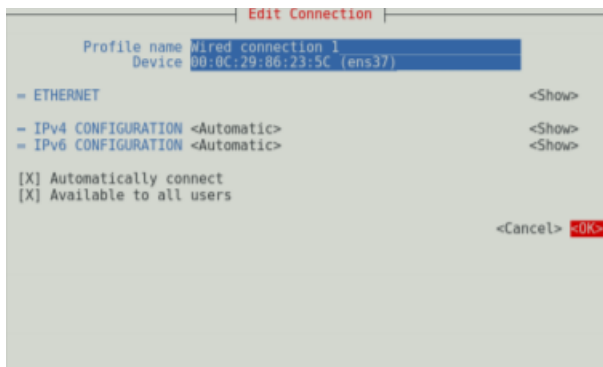

figure 1.5 :   Edit Connection and OK

1.1.5 Edit ens33 with Manual IPv4 configuration and go Back
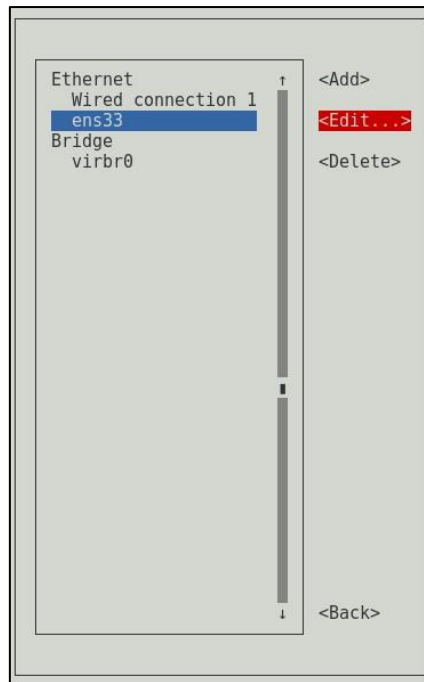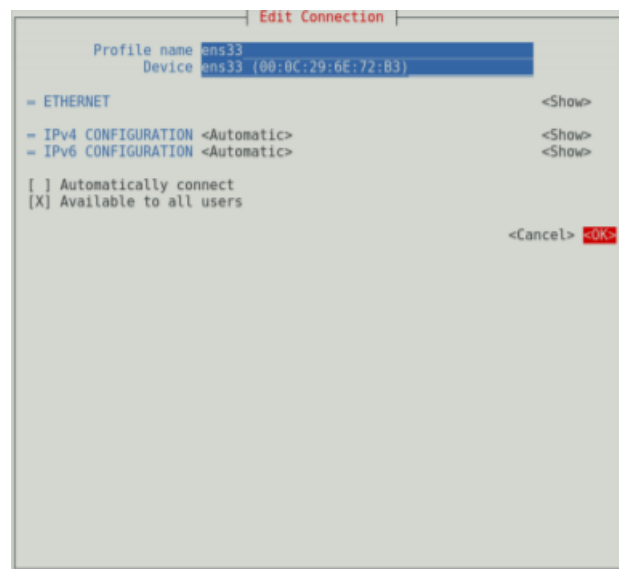
figure 1.6 :   Edit ens33

figure 1.7 :   Edit Connection and OK

1.1.6 Select Set system hostname and change the hostname as preferred

figure 1.8 :   Set system hostname

```
┤ NetworkManager TUI ├

Please select an option

Edit a connection
Activate a connection
Set system hostname

Quit

                          <OK>
```

```
──────────────┤ Set Hostname ├──────────────

Hostname server-centos7.sliit.lk

                          <Cancel>  <OK>
```
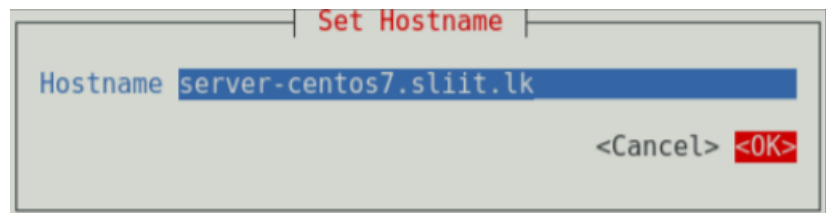
figure 1.9 :   Set Hostname and OK

1.1.7 Select Activate a connection and activate both network connections

```
┤ NetworkManager TUI ├

Please select an option

Edit a connection
Activate a connection
Set system hostname

Quit

                          <OK>
```
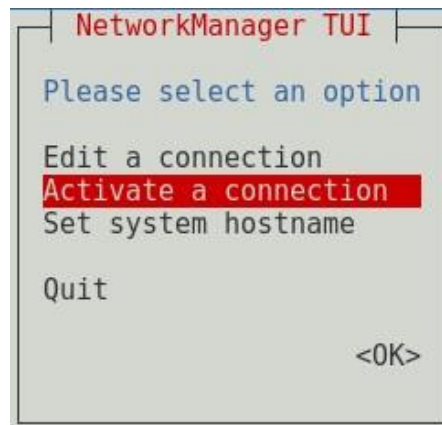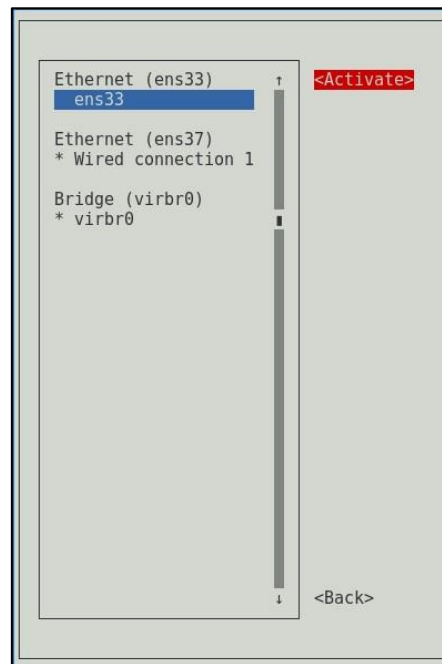
1.1.8 Click OK to exit from Network Manager TUI
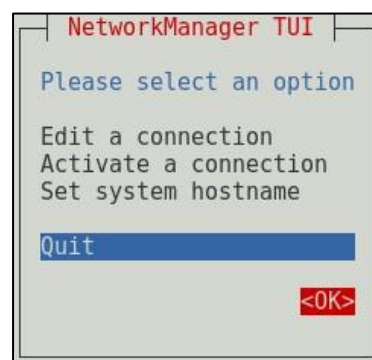
1.1.9 Check network configuration using ifconfig

```
# ifconfig
```

```
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.3.5  netmask 255.255.255.0  broadcast 10.0.3.255
        inet6 fe80::39d2:d724:c893:5f52  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:86:23:52  txqueuelen 1000  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 52  bytes 7319 (7.1 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

ens37: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.13.140  netmask 255.255.255.0  broadcast 192.168.13.255
        inet6 fe80::e939:e270:787:613f  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:86:23:5c  txqueuelen 1000  (Ethernet)
        RX packets 570  bytes 575637 (562.1 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 289  bytes 22840 (22.3 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 132  bytes 15108 (14.7 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 132  bytes 15108 (14.7 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 192.168.122.1  netmask 255.255.255.0  broadcast 192.168.122.255
        ether 52:54:00:40:84:ca  txqueuelen 1000  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

figure 1.12 :   Check network details

1.1.10 Open dhcpd file and add "DHCPDARGS=ens33" at the end of the file

```
# vi /etc/sysconfig/dhcpd
```

```
# WARNING: This file is NOT used anymore.

# If you are here to restrict what interfaces should dhcpd listen on,
# be aware that dhcpd listens *only* on interfaces for which it finds subnet
# declaration in dhcpd.conf. It means that explicitly enumerating interfaces
# also on command line should not be required in most cases.

# If you still insist on adding some command line options,
# copy dhcpd.service from /lib/systemd/system to /etc/systemd/system and modify
# it there.
# https://fedoraproject.org/wiki/Systemd#How_do_I_customize_a_unit_file.2F_add_a_custom_unit_file.3F

# example:
# $ cp /usr/lib/systemd/system/dhcpd.service /etc/systemd/system/
# $ vi /etc/systemd/system/dhcpd.service
# $ ExecStart=/usr/sbin/dhcpd -f -cf /etc/dhcp/dhcpd.conf -user dhcpd -group dhcpd --no-pid <your_interface_name(s)>
# $ systemctl --system daemon-reload
# $ systemctl restart dhcpd.service

DHCPDARGS=ens33
```

```
DHCPDARGS=ens33
```

figure 1.13 :   Add network adapter details to DHCP file

1.1.11 Check dhcpd configuration file

```
# cat /etc/dhcp/dhcpd.conf
```

```
#
# DHCP Server Configuration file.
#   see /usr/share/doc/dhcp*/dhcpd.conf.example
#   see dhcpd.conf(5) man page
#
```

figure 1.14 :   Check DHCP configuration file

1.1.12 Copy the file to another destination. Click tab twice to show version number

```
# cp /usr/share/doc/dhcp-
```
```
dhcp-4.2.5/            dhcp-common-4.2.5/
```
```
# cp /usr/share/doc/dhcp-4.2.5/dhcpd.conf.example /etc/dhcp/dhcpd.conf
```
```
cp: overwrite '/etc/dhcp/dhcpd.conf'? y
```

figure 1.15 :   *Copy DHCP file to another location*

1.1.13 Open dhcp configuration file and edit

```
# vim /etc/dhcp/dhcpd.conf
```

```
 1 █ dhcpd.conf
 2 #
 3 # Sample configuration file for ISC dhcpd
 4 #
 5
 6 # option definitions common to all supported networks...
 7 option domain-name "example.org";
 8 option domain-name-servers ns1.example.org, ns2.example.org;
 9
10 default-lease-time 600;
11 max-lease-time 7200;
12
13 # Use this to enble / disable dynamic dns updates globally.
14 #ddns-update-style none;
15
16 # If this DHCP server is the official DHCP server for the local
17 # network, the authoritative directive should be uncommented.
18 #authoritative;
19
20 # Use this to send dhcp log messages to a different log file (you also
21 # have to hack syslog.conf to complete the redirection).
22 log-facility local7;
23
24 # No service will be given on this subnet, but declaring it helps the
25 # DHCP server to understand the network topology.
26
27 subnet 10.152.187.0 netmask 255.255.255.0 {
28 }
29
30 # This is a very basic subnet declaration.
31
32 subnet 10.254.239.0 netmask 255.255.255.224 {
33   range 10.254.239.10 10.254.239.20;
34   option routers rtr-239-0-1.example.org, rtr-239-0-2.example.org;
35 }
36
```

figure 1.16 :   Open DHCP configuration file to edit

1.1.14 Check DHCP service status and start service

```
# systemctl status dhcpd.service
```

```
● dhcpd.service - DHCPv4 Server Daemon
   Loaded: loaded (/usr/lib/systemd/system/dhcpd.service; disabled; vendor preset: disabled)
   Active: inactive (dead)
     Docs: man:dhcpd(8)
           man:dhcpd.conf(5)
```

figure 1.17 :   Check DHCP status

1.1.15 Start DHCP service and enable DHCP service to start at the OS startup

```
# service dhcpd start
```

```
Redirecting to /bin/systemctl start dhcpd.service
```

figure 1.18 :   Start DHCP service

```
# chkconfig dhcpd on
```

```
Note: Forwarding request to 'systemctl enable dhcpd.service'.
Created symlink from /etc/systemd/system/multi-user.target.wants/dhcpd.service to /usr/lib/systemd/system/dhcpd.service.
```

figure 1.19 :   Enable DHCP to run at the startup

1.1.16 Check DHCP service status again

```
|# systemctl status dhcpd.service
```

```
• dhcpd.service - DHCPv4 Server Daemon
    Loaded: loaded (/usr/lib/systemd/system/dhcpd.service; enabled; vendor preset: disabled)
    Active: active (running) since Sun 2018-09-16 18:56:31 +0530; 11min ago
      Docs: man:dhcpd(8)
            man:dhcpd.conf(5)
  Main PID: 12844 (dhcpd)
    Status: "Dispatching packets..."
    CGroup: /system.slice/dhcpd.service
            └─12844 /usr/sbin/dhcpd -f -cf /etc/dhcp/dhcpd.conf -user dhcpd -group dhcpd --no-pid

Sep 16 18:56:31 server-centos7.sliit.lk dhcpd[12844]: Listening on LPF/ens33/00:0c:29:86:23:52/10.0.3.0/24
Sep 16 18:56:31 server-centos7.sliit.lk dhcpd[12844]: Sending on   LPF/ens33/00:0c:29:86:23:52/10.0.3.0/24
Sep 16 18:56:31 server-centos7.sliit.lk dhcpd[12844]: Sending on   Socket/fallback/fallback-net
Sep 16 18:56:31 server-centos7.sliit.lk systemd[1]: Started DHCPv4 Server Daemon.
Sep 16 19:01:14 server-centos7.sliit.lk dhcpd[12844]: DHCPDISCOVER from 00:0c:29:6e:72:b3 via ens33
Sep 16 19:01:15 server-centos7.sliit.lk dhcpd[12844]: DHCPOFFER on 10.0.3.10 to 00:0c:29:6e:72:b3 (client1-centos7) v...ns33
Sep 16 19:01:15 server-centos7.sliit.lk dhcpd[12844]: DHCPREQUEST for 10.0.3.10 (10.0.3.5) from 00:0c:29:6e:72:b3 (cl...ns33
Sep 16 19:01:15 server-centos7.sliit.lk dhcpd[12844]: DHCPACK on 10.0.3.10 to 00:0c:29:6e:72:b3 (client1-centos7) via ens33
Sep 16 19:05:34 server-centos7.sliit.lk dhcpd[12844]: DHCPREQUEST for 10.0.3.10 from 00:0c:29:6e:72:b3 (client1-cento...ns33
Sep 16 19:05:34 server-centos7.sliit.lk dhcpd[12844]: DHCPACK on 10.0.3.10 to 00:0c:29:6e:72:b3 (client1-centos7) via ens33
Hint: Some lines were ellipsized, use -l to show in full.
```

figure 1.20 :   Check DHCP status

1.2   **Configure DHCP in Client machine**

1.2.1 Following same procedure as previous open Network Manager with nmtui and Edit connection to Automatic DHCP
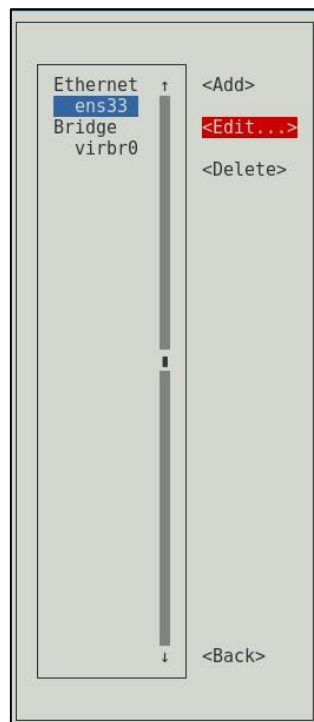

figure 1.21 :   Edit ens33 connection
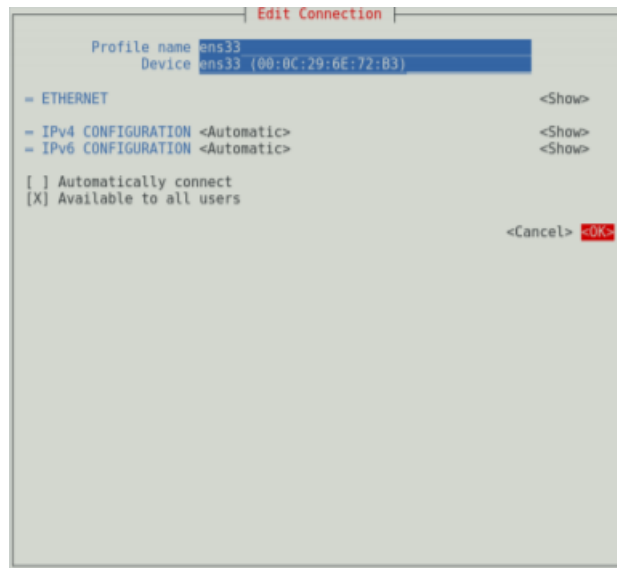
figure 1.22 :   Edit Connection to Automatic DHCP

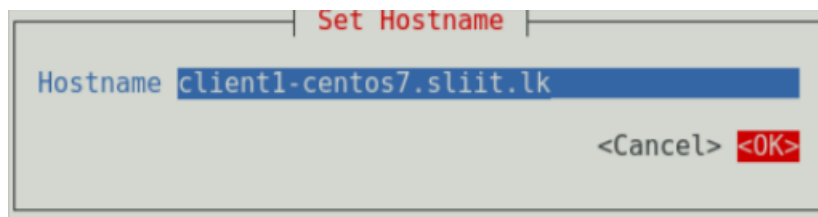**1.2.2** Change hostname as preferred and activate the connection
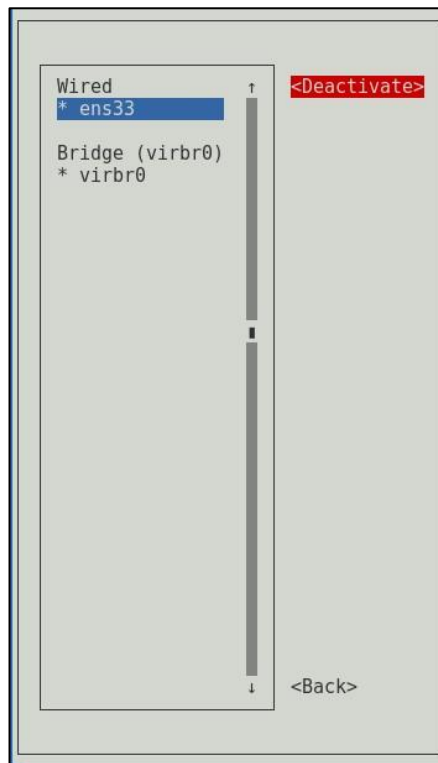
figure 1.23 :   Set Hostname

figure 1.24 :   Activate the connection

1.2.3 Check received IP with ifconfig through DHCP server

figure 1.25 :   Check network connection

2   DNS Configuration

2.1   Install and configure DNS in Server machine

2.1.1 Install bind for DNS configuration

```
# yum install bind
```

figure 2.1 : Install bind

2.1.2 Stop DHCP service and restart network service

```
# service dhcpd stop
```

```
Redirecting to /bin/systemctl stop dhcpd.service
```

figure 2.2 : Stop DHCP service

```
# service network restart
```

```
Restarting network (via systemctl):                    [  OK  ]
```

figure 2.3 : Restart network service

2.1.3 Add hostname to the network system configuration file

```
# vim /etc/sysconfig/network
```

```
# Created by anaconda
HOSTNAME=server-centos7.sliit.lk
```

figure 2.4 : Edit network file

2.1.4 Add host details to the hosts file

```
# vim /etc/hosts
```

```
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1          localhost localhost.localdomain localhost6 localhost6.localdomain6
10.0.3.5     server-centos7.sliit.lk server-centos7
```

figure 2.5 : Edit hosts file

2.1.5 Edit DNS configuration file and add zone details

```
# vim /etc/named.conf
```

```
options {
        listen-on port 53 { 127.0.0.1; 10.0.3.5; };
        listen-on-v6 port 53 { ::1; };
        directory       "/var/named";
        dump-file       "/var/named/data/cache_dump.db";
        statistics-file "/var/named/data/named_stats.txt";
        memstatistics-file "/var/named/data/named_mem_stats.txt";
        allow-query     { localhost; 10.0.3.0/24; };
```

```
zone "." IN {
        type hint;
        file "named.ca";
};

#####forward look up zone
zone "sliit.lk" IN {
        type master;
        file "forward.sliit.lk";
        allow-update { none; };
};

#####reverse look up zone
zone "3.0.10.in-addr.arpa" IN {
        type master;
        file "reverse.sliit.lk";
        allow-update { none; };
};

include "/etc/named.rfc1912.zones";
include "/etc/named.root.key";
```

figure 2.6 : Edit DNS configuration file

2.1.6 Create forward lookup zone file for DNS configuration

```
# vim /var/named/forward.sliit.lk
```

```
$TTL 86400

@       IN      SOA             server-centos7.sliit.lk. root.sliit.lk. (
                2011071001      ; Serial
                3600            ; Refresh
                1800            ; Retry
                604800          ; Expire
                86400   )       ; Minimum TTL

@       IN      NS      server-centos7.sliit.lk.

@       IN      A       10.0.3.5
@       IN      A       10.0.3.10
@       IN      A       10.0.3.20

server-centos7          IN      A       10.0.3.5
client1-centos7         IN      A       10.0.3.10
client2-centos7         IN      A       10.0.3.20
```

figure 2.7 : forward lookup zone file

2.1.7 Create reverse lookup zone file for DNS configuration

```
# vim /var/named/reverse.sliit.lk
```

```
$TTL 86400

@       IN      SOA             server-centos7.sliit.lk. root.sliit.lk. (
                2011071001      ; Serial
                3600            ; Refresh
                1800            ; Retry
                604800          ; Expire
                86400   )       ; Minimum TTL

@       IN      NS      server-centos7.sliit.lk.
@       IN      PTR     sliit.lk.

server-centos7          IN      A       10.0.3.5
client1-centos7         IN      A       10.0.3.10
client2-centos7         IN      A       10.0.3.20

5       IN      PTR     server-centos7.sliit.lk.
10      IN      PTR     client1-centos7.sliit.lk.
20      IN      PTR     client2-centos7.sliit.lk.
```

figure 2.8 : reverse lookup zone file

2.1.8 Stop DHCP and DNS services

```
# service dhcpd stop
```

```
Redirecting to /bin/systemctl stop dhcpd.service
```

figure 2.9 : Stop DHCP service

```
# service named stop
```

```
Redirecting to /bin/systemctl stop named.service
```

figure 2.10 : Stop DNS service

2.1.9 Edit DHCP configuration file for DNS configuration

```
# vim /etc/dhcp/dhcpd.conf
```

figure 2.11 : Open DHCP configuration file to edit

2.1.10 Enable DNS service to start at startup and start DNS service

```
# systemctl enable named
```

figure 2.12 : Enable DNS service

```
# systemctl start named
```

figure 2.13 : Start DNS service

2.1.11 Add port to allow through firewall and reload firewall

```
# firewall-cmd --permanent --add-port=53/udp
```

```
success
```

figure 2.14 : Add port

```
# firewall-cmd --reload
```

```
success
```

figure 2.15 : Reload firewall

2.1.15 Add DNS detail to the network adapter file

```
# vim /etc/sysconfig/network-scripts/ifcfg-ens33

                TYPE=Ethernet
                PROXY_METHOD=none
                BROWSER_ONLY=no
                BOOTPROTO=none
                DEFROUTE=yes
                IPV4_FAILURE_FATAL=no
                IPV6INIT=yes
                IPV6_AUTOCONF=yes
                IPV6_DEFROUTE=yes
                IPV6_FAILURE_FATAL=no
                IPV6_ADDR_GEN_MODE=stable-privacy
                NAME=ens33
                UUID=3382b01e-ee2f-44dc-83c4-810ee2b53560
                DEVICE=ens33
                ONBOOT=no
                IPADDR=10.0.3.5
                PREFIX=24
                GATEWAY=10.0.3.1
                DNS1=10.0.3.5
```

figure 2.16: Add DNS details

2.1.16 Restart the network service, DHCP service and DNS service

```
# service network restart

Restarting network (via systemctl):                    [  OK  ]
```

figure 2.17 : Restart network service

```
# service dhcpd restart

Redirecting to /bin/systemctl restart dhcpd.service
```

figure 2.18 : Restart DHCP service

```
# service named restart
```

```
Redirecting to /bin/systemctl restart named.service
```

figure 2.19 : Restart DNS service

2.1.17 Check DNS service status

```
$ service named status
```

```
Redirecting to /bin/systemctl status named.service
● named.service - Berkeley Internet Name Domain (DNS)
   Loaded: loaded (/usr/lib/systemd/system/named.service; enabled; vendor preset: disabled)
   Active: active (running) since Sun 2018-09-16 20:49:19 +0530; 4min 49s ago
  Process: 1137 ExecStart=/usr/sbin/named -u named -c ${NAMEDCONF} $OPTIONS (code=exited, status=0/SUCCESS)
  Process: 1100 ExecStartPre=/bin/bash -c if [ ! "$DISABLE_ZONE_CHECKING" == "yes" ]; then /usr/sbin/named-checkconf -z "$
NAMEDCONF"; else echo "Checking of zone files is disabled"; fi (code=exited, status=0/SUCCESS)
 Main PID: 1156 (named)
    Tasks: 4
   CGroup: /system.slice/named.service
           └─1156 /usr/sbin/named -u named -c /etc/named.conf

Sep 16 20:49:19 server-centos7.sliit.lk named[1156]: zone 0.in-addr.arpa/IN: loaded serial 0
Sep 16 20:49:19 server-centos7.sliit.lk named[1156]: zone 3.0.10.in-addr.arpa/IN: loaded serial 2011071001
Sep 16 20:49:19 server-centos7.sliit.lk named[1156]: zone 1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0...al 0
Sep 16 20:49:19 server-centos7.sliit.lk named[1156]: zone 1.0.0.127.in-addr.arpa/IN: loaded serial 0
Sep 16 20:49:19 server-centos7.sliit.lk named[1156]: zone sliit.lk/IN: loaded serial 2011071001
Sep 16 20:49:19 server-centos7.sliit.lk named[1156]: zone localhost.localdomain/IN: loaded serial 0
Sep 16 20:49:19 server-centos7.sliit.lk named[1156]: zone localhost/IN: loaded serial 0
Sep 16 20:49:19 server-centos7.sliit.lk named[1156]: all zones loaded
Sep 16 20:49:19 server-centos7.sliit.lk named[1156]: running
Sep 16 20:49:19 server-centos7.sliit.lk systemd[1]: Started Berkeley Internet Name Domain (DNS).
Hint: Some lines were ellipsized, use -l to show in full.
```

figure 2.20 : DNS service status

2.1.18 Check resolve configuration file to see configured DNS details

```
# # cat /etc/resolv.conf

# Generated by NetworkManager
search localdomain sliit.lk
nameserver 10.0.3.5
nameserver 192.168.13.2
```

figure 2.21 : Check resolve configuration file

2.1.19 Check DNS details through dig and nslookup commands

```
# dig sliit.lk

; <<>> DiG 9.9.4-RedHat-9.9.4-61.el7_5.1 <<>> sliit.lk
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 467
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 1, ADDITIONAL: 2

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;sliit.lk.                      IN      A

;; ANSWER SECTION:
sliit.lk.               86400   IN      A       10.0.3.5
sliit.lk.               86400   IN      A       10.0.3.10
sliit.lk.               86400   IN      A       10.0.3.20

;; AUTHORITY SECTION:
sliit.lk.               86400   IN      NS      server-centos7.sliit.lk.

;; ADDITIONAL SECTION:
server-centos7.sliit.lk. 86400  IN      A       10.0.3.5

;; Query time: 1 msec
;; SERVER: 10.0.3.5#53(10.0.3.5)
;; WHEN: Sun Sep 16 21:16:20 +0530 2018
;; MSG SIZE  rcvd: 130
```

```
# dig server-centos7.sliit.lk

; <<>> DiG 9.9.4-RedHat-9.9.4-61.el7_5.1 <<>> server-centos7.sliit.lk
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 26952
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;server-centos7.sliit.lk.       IN      A

;; ANSWER SECTION:
server-centos7.sliit.lk. 86400  IN      A       10.0.3.5

;; AUTHORITY SECTION:
sliit.lk.               86400   IN      NS      server-centos7.sliit.lk.

;; Query time: 1 msec
;; SERVER: 10.0.3.5#53(10.0.3.5)
;; WHEN: Sun Sep 16 21:16:39 +0530 2018
;; MSG SIZE  rcvd: 82
```

figure 2.23 : dig command with hostname

```
# nslookup sliit.lk


Server:         10.0.3.5
Address:        10.0.3.5#53

Name:   sliit.lk
Address: 10.0.3.10
Name:   sliit.lk
Address: 10.0.3.5
Name:   sliit.lk
Address: 10.0.3.20
```

figure 2.24 : nslookup command with

```
# nslookup server-centos7.sliit.lk

Server:         10.0.3.5
Address:        10.0.3.5#53

Name:   server-centos7.sliit.lk
Address: 10.0.3.5
```

figure 2.25 : nslookup command with hostname

2.2   **Configure DNS in Client machine**

2.2.1 Add hostname to the network system configuration file

```
# vim /etc/sysconfig/network
```

```
# Created by anaconda
HOSTNAME=client1-centos7.sliit.lk
```

figure 2.26 : Edit network file

2.2.2 Add host details to the hosts file

```
# vim /etc/hosts
```

```
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1          localhost localhost.localdomain localhost6 localhost6.localdomain6
10.0.3.10    client1-centos7.sliit.lk client1-centos7
```
figure 2.27 : Edit hosts file

2.2.3 Check resolve configuration file to see configured DNS details

```
# cat /etc/resolv.conf
```

```
# Generated by NetworkManager
search sliit.lk
nameserver 10.0.3.5          _
```

2.2.4 Check DNS details through dig and nslookup commands

```
# dig sliit.lk
```

```
[root@client1-centos7 ~]# dig sliit.lk

; <<>> DiG 9.9.4-RedHat-9.9.4-61.el7_5.1 <<>> sliit.lk
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 53555
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 1, ADDITIONAL: 2

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;sliit.lk.                    IN      A

;; ANSWER SECTION:
sliit.lk.            86400   IN      A       10.0.3.10
sliit.lk.            86400   IN      A       10.0.3.20
sliit.lk.            86400   IN      A       10.0.3.5

;; AUTHORITY SECTION:
sliit.lk.            86400   IN      NS      server-centos7.sliit.lk.

;; ADDITIONAL SECTION:
server-centos7.sliit.lk. 86400  IN      A       10.0.3.5

;; Query time: 2 msec
;; SERVER: 10.0.3.5#53(10.0.3.5)
;; WHEN: Sun Sep 16 21:17:27 +0530 2018
;; MSG SIZE  rcvd: 130
```

figure 2.28 : dig command with domain

figure 2.29 : dig command with hostname

```
                  # dig server-centos7.sliit.lk

; <<>> DiG 9.9.4-RedHat-9.9.4-61.el7_5.1 <<>> server-centos7.sliit.lk
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 22484
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;server-centos7.sliit.lk.         IN      A

;; ANSWER SECTION:
server-centos7.sliit.lk. 86400  IN      A       10.0.3.5

;; AUTHORITY SECTION:
sliit.lk.                 86400   IN      NS      server-centos7.sliit.lk.

;; Query time: 10 msec
;; SERVER: 10.0.3.5#53(10.0.3.5)
;; WHEN: Sun Sep 16 21:17:44 +0530 2018
;; MSG SIZE  rcvd: 82
```

figure 2.30 : nslookup command with domain

```
              # nslookup sliit.lk
         Server:          10.0.3.5
         Address:         10.0.3.5#53

# nslookup server-centos7.sliit.lk
              Address: 10.0.3.20
    Server:          10.0.3.5
    Address:         10.0.3.5#53

    Name:    server-centos7.sliit.lk
    Address: 10.0.3.5
```

figure 2.31 : nslookup command with hostname

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3   Zimbra Installation

3.1   Install Zimbra in CentOS 7 Server machine

3.1.1 Edit selinux system configuration file enforcing to disabled

```
# vim /etc/sysconfig/selinux
```

```
# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#     enforcing - SELinux security policy is enforced.
#     permissive - SELinux prints warnings instead of enforcing.
#     disabled - No SELinux policy is loaded.
SELINUX=enforcing
# SELINUXTYPE= can take one of three two values:
#     targeted - Targeted processes are protected,
#     minimum - Modification of targeted policy. Only selected processes are protected.
#     mls - Multi Level Security protection.
SELINUXTYPE=targeted
```

```
SELINUX=disabled
```
figure 3.1 : Edit selinux file

3.1.2 Stop and disable the firewall service

```
# service firewalld stop
```

```
Redirecting to /bin/systemctl stop firewalld.service
```

figure 3.2 : Stop firewall service

```
# systemctl disable firewalld
```

```
Removed symlink /etc/systemd/system/multi-user.target.wants/firewalld.service.
Removed symlink /etc/systemd/system/dbus-org.fedoraproject.FirewallD1.service.
```

figure 3.3 : Disable firewall service

3.1.3 Stop and disable the postfix service

```
# service postfix stop
```

```
Redirecting to /bin/systemctl stop postfix.service
```

figure 3.3 : Stop postfix service

```
# systemctl disable postfix
```

```
Removed symlink /etc/systemd/system/multi-user.target.wants/postfix.service.
```

figure 3.4 : Disable postfix service

3.1.4 Install required packages

```
[root@server-centos7 ~]# yum install perl perl-core wget screen w3m elinks openssh-clients openssh-server bind bind-ut
ils unzip nmap sed nc sysstat libaio rsync telnet aspell
```

figure 3.5 : Install required packages

3.1.5 Edit forward lookup zone file for mail forwarding access

```
# vim /var/named/forward.sliit.lk

$TTL 86400

@       IN      SOA             server-centos7.sliit.lk. root.sliit.lk. (
                2011071001      ; Serial
                3600            ; Refresh
                1800            ; Retry
                604800          ; Expire
                86400   )       ; Minimum TTL

@       IN      NS      server-centos7.sliit.lk.

@       IN      MX      0       mail.sliit.lk.

@       IN      A       10.0.3.5
@       IN      A       10.0.3.10
@       IN      A       10.0.3.20

server-centos7          IN      A       10.0.3.5
client1-centos7         IN      A       10.0.3.10
client2-centos7         IN      A       10.0.3.20
mail                    IN      A       10.0.3.5
~
```

figure 3.6 : Edit forward lookup zone file

3.1.5 Make a new directory and switch to it

```
# mkdir zimbra
```

figure 3.7 : Make directory

```
# cd zimbra
```

figure 3.8 : Change directory

3.1.6 Download Zimbra installation file to the desktop and unzip it in new directory

```
# tar xvzf /home/server/Desktop/zcs-8.8.9_GA_3019.RHEL7_64.20180809160254.tgz
```

figure 3.9 : Unzip Zimbra file

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3.1.7 Switch to the unzip folder and run the installation file

```
[root@server-centos7 zimbra]# ls
zcs-8.8.9_GA_3019.RHEL7_64.20180809160254
[root@server-centos7 zimbra]# cd zcs-8.8.9_GA_3019.RHEL7_64.20180809160254
[root@server-centos7 zcs-8.8.9_GA_3019.RHEL7_64.20180809160254]# ls
bin  data  docs  install.sh  lib  packages  readme_binary_en_US.txt  README.txt  util
[root@server-centos7 zcs-8.8.9_GA_3019.RHEL7_64.20180809160254]# ./install.sh
```

figure 3.10 : Switch to folder and run installer

3.1.8 Accept terms of the software license agreement and to use Zimbra's package repository

```
Do you agree with the terms of the software license agreement? [N] y
```

figure 3.11 : License agreement

```
Use Zimbra's package repository [Y] y
```

figure 3.12 : Repository packages

3.1.9 Select required packages to install

```
Select the packages to install
Install zimbra-ldap [Y] n
Install zimbra-logger [Y] y
Install zimbra-mta [Y] y
Install zimbra-dnscache [Y] y
Install zimbra-snmp [Y] y
Install zimbra-store [Y] y
Install zimbra-apache [Y] y
Install zimbra-spell [Y] y
Install zimbra-memcached [Y] y
Install zimbra-proxy [Y] y
Install zimbra-drive [Y] y
Install zimbra-imapd (BETA - for evaluation only) [N] n
Install zimbra-chat [Y] y
```

figure 3.12 : Packages to install

3.1.10 Change hostname and domain name if required

```
Change hostname [Yes] y
Please enter the logical hostname for this host [server-centos7.sliit.lk]
```

figure 3.13 : Change hostname

```
Change domain name? [Yes] y
Create domain: [server-centos7.sliit.lk]
```

figure 3.14 : Change domain name

3.1.11 Configure unset values and continue process

```
Main menu

  1) Common Configuration:
  2) zimbra-ldap:                          Enabled
  3) zimbra-logger:                        Enabled
  4) zimbra-mta:                           Enabled
  5) zimbra-snmp:                          Enabled
  6) zimbra-store:                         Enabled
        +Create Admin User:                yes
        +Admin user to create:             admin@sliit.lk
******* +Admin Password                    UNSET
        +Anti-virus quarantine user:       virus-quarantine.atfwxsjeyj@sliit.lk
        +Enable automated spam training:   yes
        +Spam training user:               spam.w7ik6fmip@sliit.lk
        +Non-spam(Ham) training user:      ham.c7hlyqz3@sliit.lk
        +SMTP host:                        server-centos7.sliit.lk
        +Web server HTTP port:             8080
        +Web server HTTPS port:            8443
        +Web server mode:                  https
        +IMAP server port:                 7143
        +IMAP server SSL port:             7993
        +POP server port:                  7110
        +POP server SSL port:              7995
        +Use spell check server:           yes
        +Spell server URL:                 http://server-centos7.sliit.lk:7780/aspell.php
        +Enable version update checks:     TRUE
        +Enable version update notifications: TRUE
        +Version update notification email: admin@sliit.lk
        +Version update source email:      admin@sliit.lk
        +Install mailstore (service webapp): yes
        +Install UI (zimbra,zimbraAdmin webapps): yes

  7) zimbra-spell:                         Enabled
  8) zimbra-proxy:                         Enabled
  9) Default Class of Service Configuration:
  s) Save config to file
  x) Expand menu
  q) Quit

Address unconfigured (**) items   (? - help) 6
```

figure 3.15 : Main menu

```
Store configuration

   1) Status:                        Enabled
   2) Create Admin User:             yes
   3) Admin user to create:          admin@sliit.lk
** 4) Admin Password                 UNSET
   5) Anti-virus quarantine user:    virus-quarantine.atfwxsjeyj@sliit.lk
   6) Enable automated spam training: yes
   7) Spam training user:            spam.w7ik6fmip@sliit.lk
   8) Non-spam(Ham) training user:   ham.c7hlyqz3@sliit.lk
   9) SMTP host:                     server-centos7.sliit.lk
  10) Web server HTTP port:          8080
  11) Web server HTTPS port:         8443
  12) Web server mode:               https
  13) IMAP server port:              7143
  14) IMAP server SSL port:          7993
  15) POP server port:               7110
  16) POP server SSL port:           7995
  17) Use spell check server:        yes
  18) Spell server URL:              http://server-centos7.sliit.lk:7780/aspell.php
  19) Enable version update checks:  TRUE
  20) Enable version update notifications: TRUE
  21) Version update notification email: admin@sliit.lk
  22) Version update source email:   admin@sliit.lk
  23) Install mailstore (service webapp): yes
  24) Install UI (zimbra,zimbraAdmin webapps): yes

Select, or 'r' for previous menu [r] 4

Password for admin@sliit.lk (min 6 characters): [dW14donQ] CSAdmsrt@gbk9
```

figure 3.16 : Store configuration

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3.1.12 Login to Zimbra and check Zimbra control status

```
# su - zimbra
```

figure 3.16 : Login to Zimbra

```
[zimbra@server-centos7 ~]$ zmcontrol status
Host server-centos7.sliit.lk
        amavis              Running
        antispam            Running
        antivirus           Running
        ldap                Running
        logger              Running
        mailbox             Running
        memcached           Running
        mta                 Running
        opendkim            Running
        proxy               Running
        service webapp      Running
        snmp                Running
        spell               Running
        stats               Running
        zimbra webapp       Running
        zimbraAdmin webapp  Running
        zimlet webapp       Running
        zmconfigd           Running
```

figure 3.17 : Zimbra control status

3.1.13 Switch to Zimbra mail configured IP address using web browser and login

:
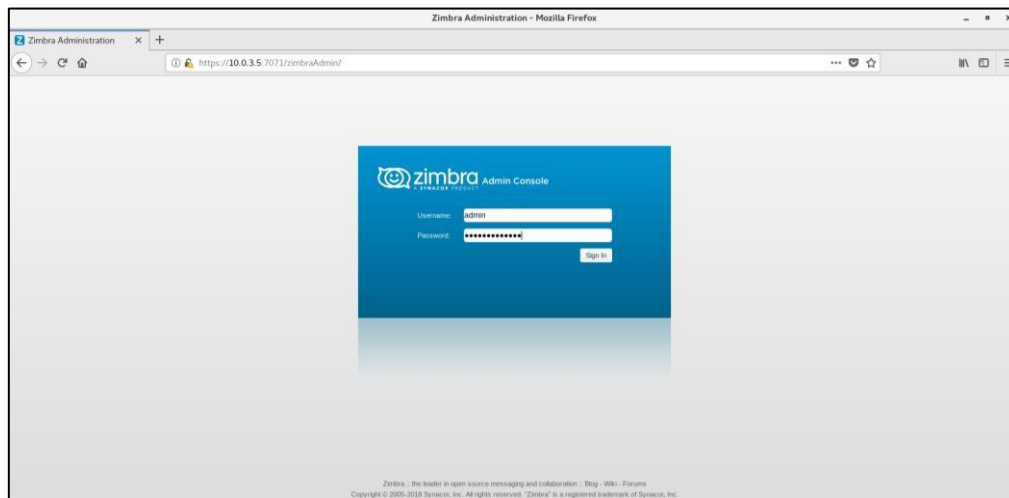
figure 3.17 : Zimbra admin console
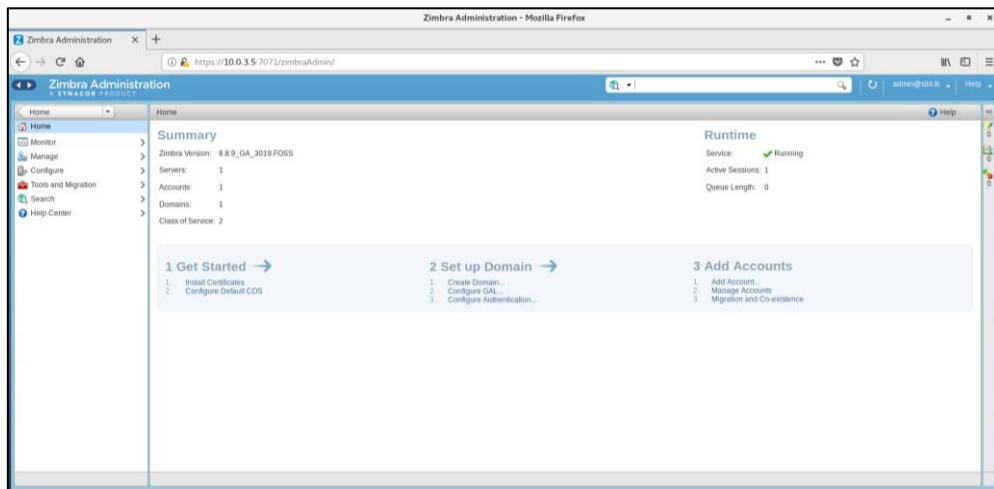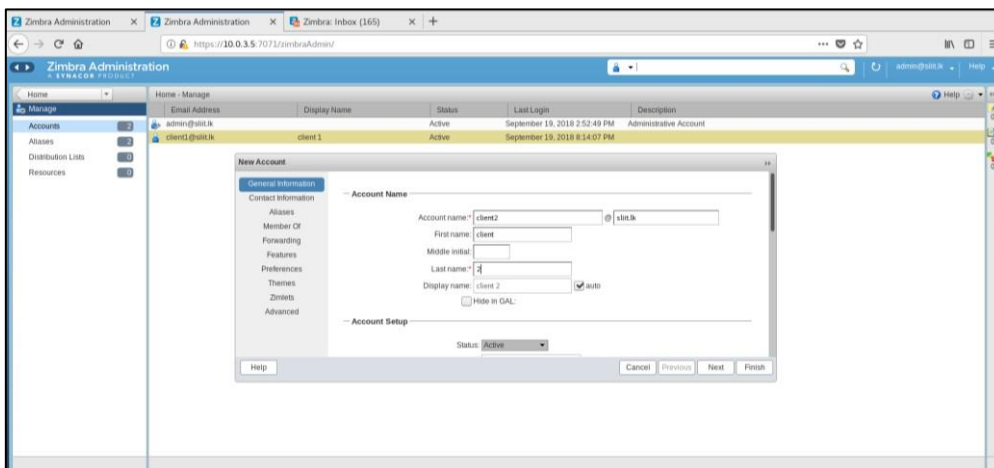
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3.1.14 Click Add Account to add user account

figure 3.18 :   Zimbra home page

3.1.16 Add required details and create new user account

:

figure 3.19:   Add account
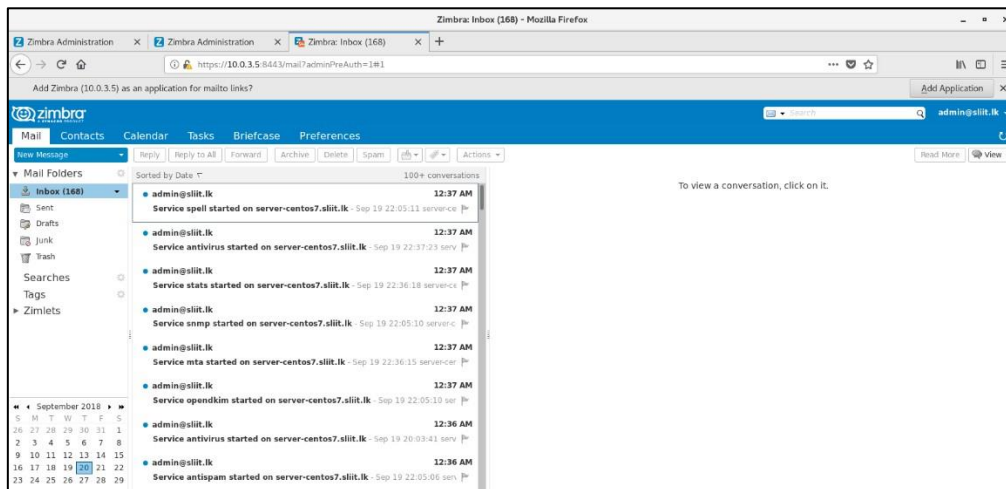
3.1.15 Login to administrator mail account

.

figure 3.20 : Zimbra admin mail account

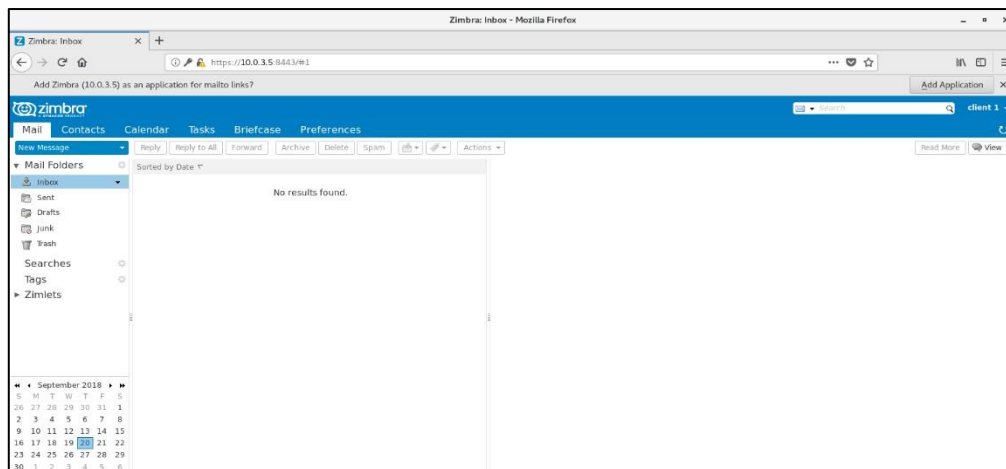**3.1.16** Login to client mail account

.

figure 3.20 : Zimbra client mail account

Declaration

I certify that this report does not incorporate without acknowledgement, any material previously submitted for a degree or diploma in any university, and to the best of my

knowledge and belief it does not contain any material previously published or written by another person, except where due reference is made in text.

By,

Vihanga Nivarthana