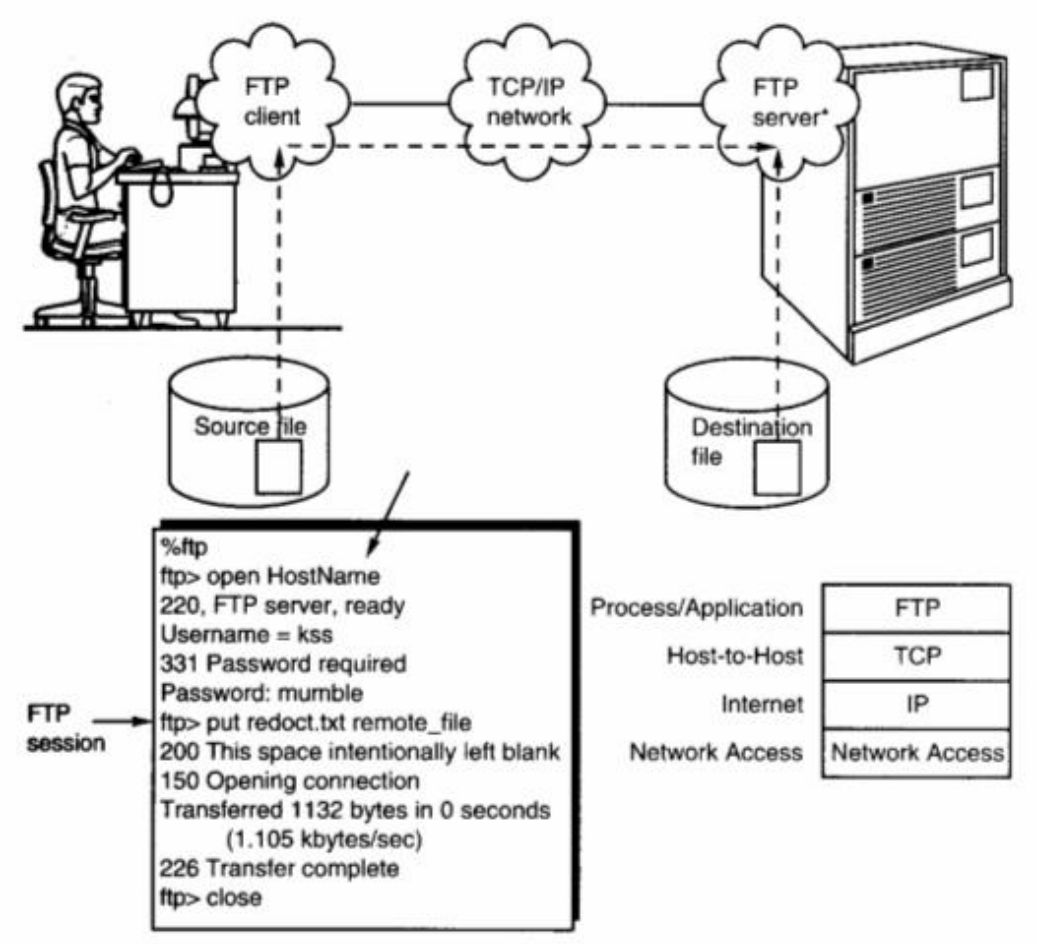
Minggu 10
FTP Server

Pendahuluan

- FTP merupakan protokol yang digunakan untuk mengirim file
- Menggunakan protocol transport TCP, karena protokol ini memberikan garansi pengiriman dengan FTP yang dapat memungkinkan user mengakses file dan direktory secara interaktif, diantaranya :
  - Melihat daftar file pada direktory remote dan lokal.
  - Menganti nama dan menghapus file
  - Transfer file dari host remote ke lokal (download)
  - Transfer file dari host lokal ke remote (upload)

Mekanisme FTP



TFTP (Trivial File Transfer Protocol)

- Merupakan transfer file antara dua host tanpa memerlukan pengenalan (authentication) terhadap user yang memakai.
- File dapat di transfer dengan hanya menunjukkan nama file tersebut.
- User-account dan password tidak diperlukan untuk transfer file dengan TFTP
- Biasanya perlu dibatasi jenis file yang dapat ditransfer, demikian juga implementasinya untuk akses dapat ditolak kecuali setiap user yang berada pada host dapat mengakses file.

TFTP (Trivial File Transfer Protocol)

- TFTP kebanyakan dipakai untuk menghubungkan workstation yang tidak memiliki diskdrive maupun harddisk ke server untuk mendownload boot-image dari sistem operasi pada saat booting.
- Router cisco menggunakan protokol ini untuk bertukar informasi tabel routing antar peralatan router yang ada.
- Protokol TFTP cukup kecil dan efisien untuk diterapkan pada Boot ROM didalam card jaringan yang dipasang pada workstation.
- Workstation Unix dari *Sun Microsystem* menggunakan TFTP untuk menghubungkan dengan RARP atau BOOTP yang dapat dipergunakan untuk menentukan alamat IP dari workstation tersebut pada saat meng-download sistem operasi untuk booting.

Contoh Installasi

PROSEDUR

1. Konfigurasi pada komputer FTP server

a. cek IP address

```
#ifconfig
```

b. cek FTP server sudah terinstall atau belum

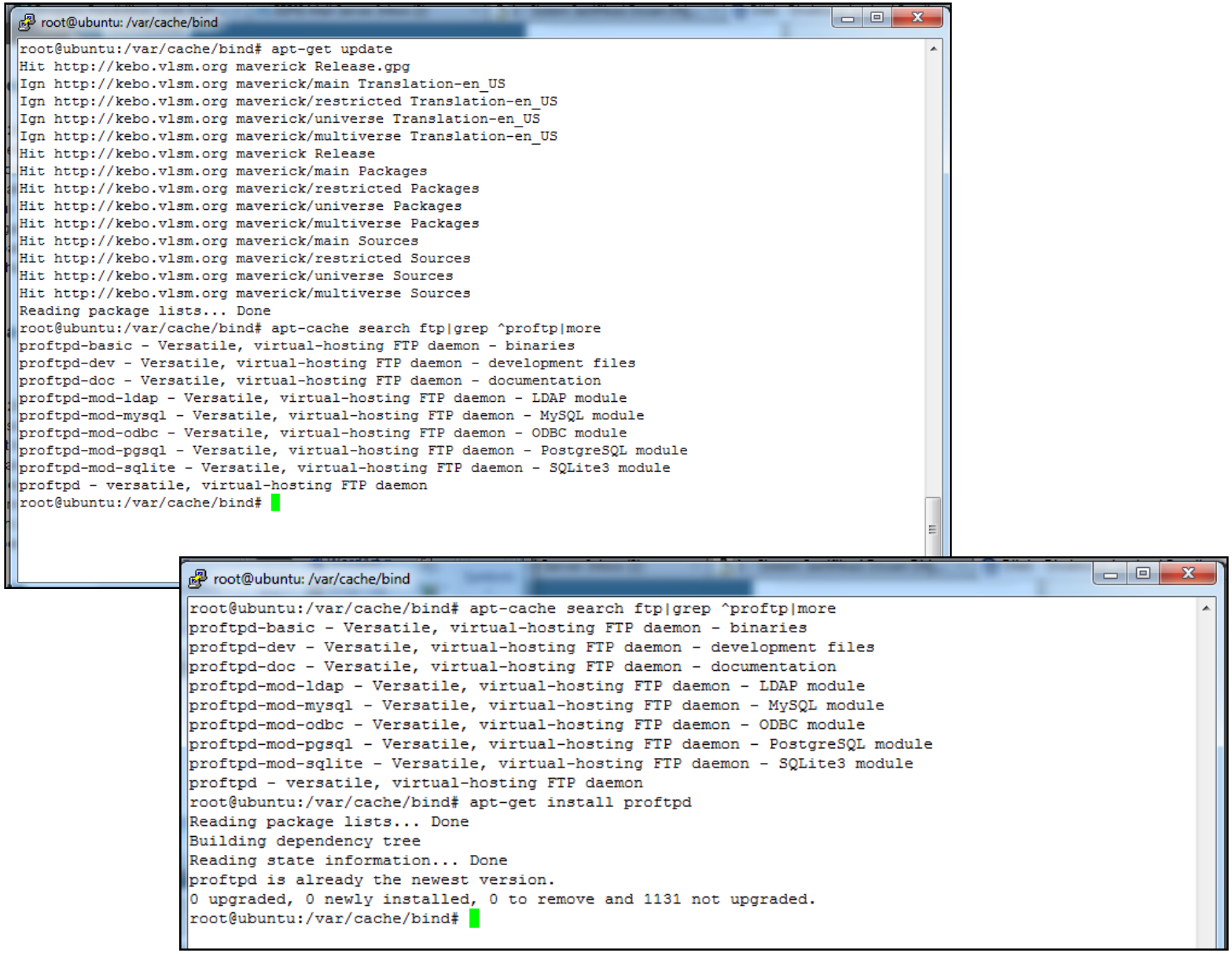
```
#dpkg -1| grep proftpd
```

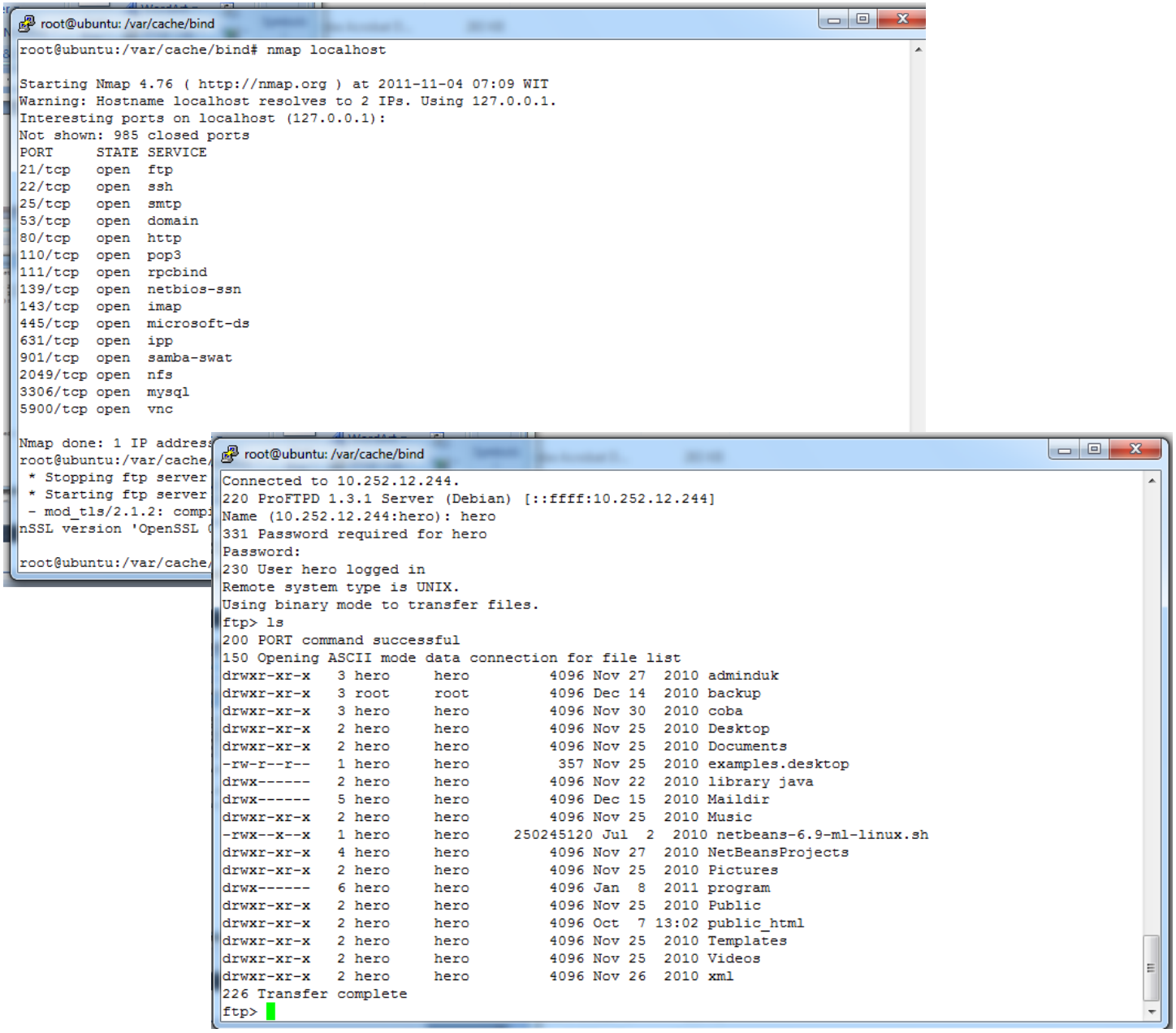
c. cek FTP server apakah sudah port 21

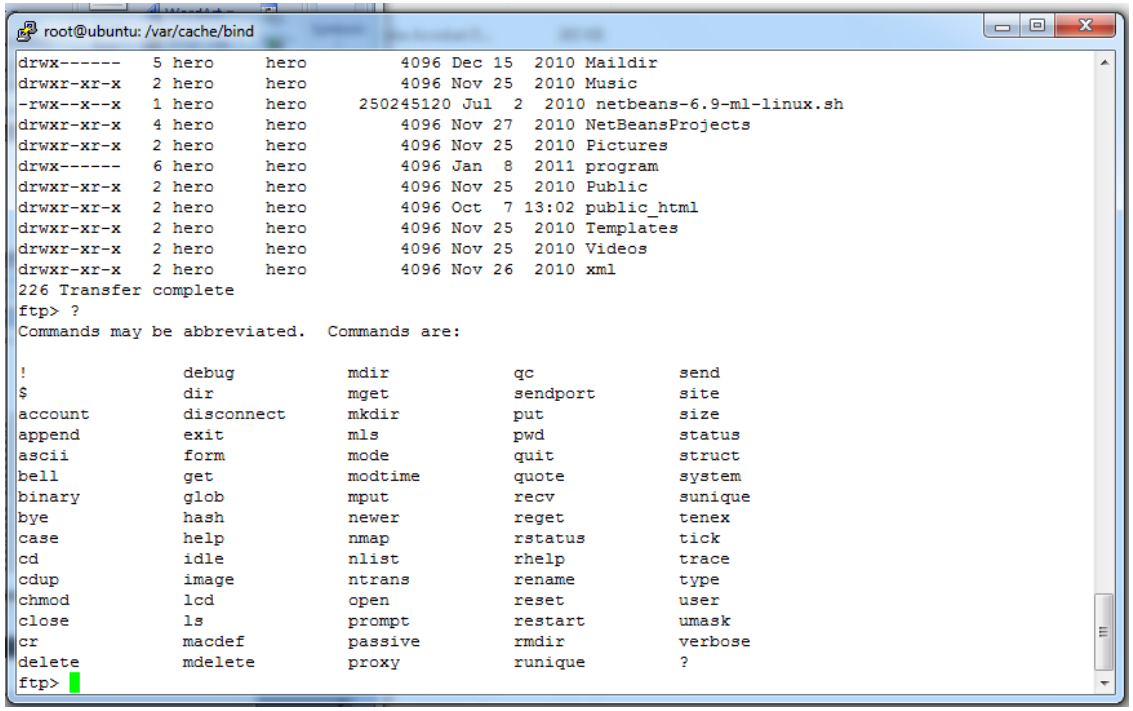
```
#netstat - nlptu
```

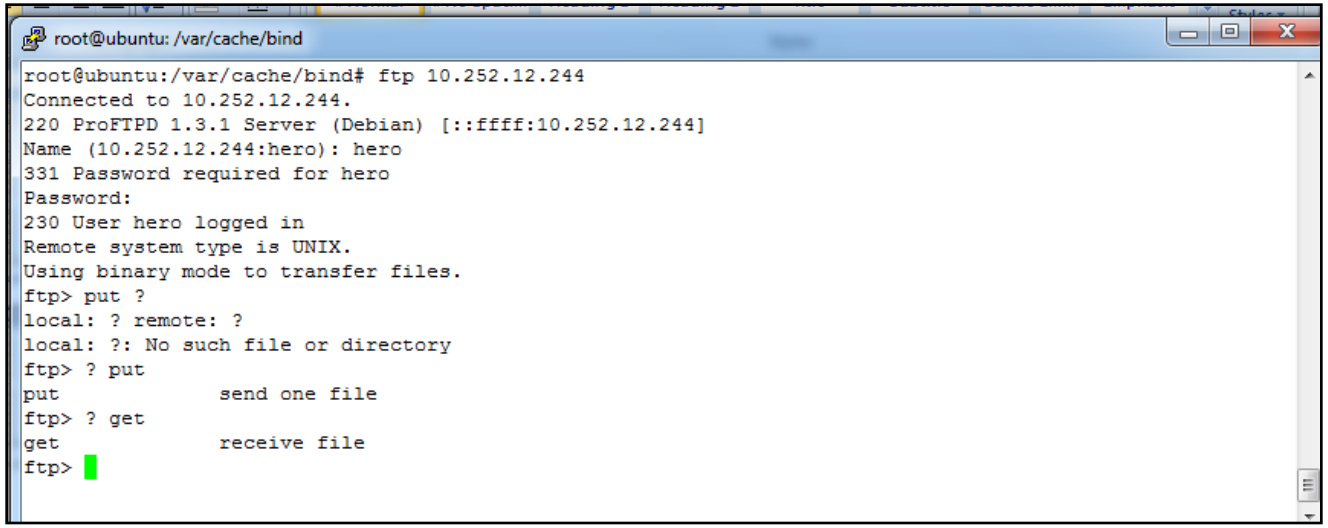
d. jika belum terinstall maka install paket proftpd dengan cara :

```
#apt-get install proftpd
```


root@ubuntu: /var/cache/bind
root@ubuntu:/var/cache/bind# apt-get update
Hit http://kebo.vlsm.org maverick Release.gpg
Ign http://kebo.vlsm.org maverick/main Translation-en_US
Ign http://kebo.vlsm.org maverick/restricted Translation-en_US
Ign http://kebo.vlsm.org maverick/universe Translation-en_US
Ign http://kebo.vlsm.org maverick/multiverse Translation-en_US
Hit http://kebo.vlsm.org maverick Release
Hit http://kebo.vlsm.org maverick/main Packages
Hit http://kebo.vlsm.org maverick/restricted Packages
Hit http://kebo.vlsm.org maverick/universe Packages
Hit http://kebo.vlsm.org maverick/multiverse Packages
Hit http://kebo.vlsm.org maverick/main Sources
Hit http://kebo.vlsm.org maverick/restricted Sources
Hit http://kebo.vlsm.org maverick/universe Sources
Hit http://kebo.vlsm.org maverick/multiverse Sources
Reading package lists... Done
root@ubuntu:/var/cache/bind# apt-cache search ftp|grep ^proftp|more
proftpd-basic - Versatile, virtual-hosting FTP daemon - binaries
proftpd-dev - Versatile, virtual-hosting FTP daemon - development files
proftpd-doc - Versatile, virtual-hosting FTP daemon - documentation
proftpd-mod-ldap - Versatile, virtual-hosting FTP daemon - LDAP module
proftpd-mod-mysql - Versatile, virtual-hosting FTP daemon - MySQL module
proftpd-mod-odbc - Versatile, virtual-hosting FTP daemon - ODBC module
proftpd-mod-pgsql - Versatile, virtual-hosting FTP daemon - PostgreSQL module
proftpd-mod-sqlite - Versatile, virtual-hosting FTP daemon - SQLite3 module
proftpd - versatile, virtual-hosting FTP daemon
root@ubuntu:/var/cache/bind#
root@ubuntu: /var/cache/bind
root@ubuntu:/var/cache/bind# apt-cache search ftp|grep ^proftp|more
proftpd-basic - Versatile, virtual-hosting FTP daemon - binaries
proftpd-dev - Versatile, virtual-hosting FTP daemon - development files
proftpd-doc - Versatile, virtual-hosting FTP daemon - documentation
proftpd-mod-ldap - Versatile, virtual-hosting FTP daemon - LDAP module
proftpd-mod-mysql - Versatile, virtual-hosting FTP daemon - MySQL module
proftpd-mod-odbc - Versatile, virtual-hosting FTP daemon - ODBC module
proftpd-mod-pgsql - Versatile, virtual-hosting FTP daemon - PostgreSQL module
proftpd-mod-sqlite - Versatile, virtual-hosting FTP daemon - SQLite3 module
proftpd - versatile, virtual-hosting FTP daemon
root@ubuntu:/var/cache/bind# apt-get install proftpd
Reading package lists... Done
Building dependency tree
Reading state information... Done
proftpd is already the newest version.
0 upgraded, 0 newly installed, 0 to remove and 1131 not upgraded.
root@ubuntu:/var/cache/bind#


root@ubuntu: /var/cache/bind
root@ubuntu:/var/cache/bind# nmap localhost
Starting Nmap 4.76 (http://nmap.org) at 2011-11-04 07:09 WIT
Warning: Hostname localhost resolves to 2 IPs. Using 127.0.0.1.
Interesting ports on localhost (127.0.0.1):
Not shown: 985 closed ports
PORT STATE SERVICE
21/tcp open ftp
22/tcp open ssh
25/tcp open smtp
53/tcp open domain
80/tcp open http
110/tcp open pop3
111/tcp open rpcbind
139/tcp open netbios-ssn
143/tcp open imap
445/tcp open microsoft-ds
631/tcp open ipp
901/tcp open samba-swat
2049/tcp open nfs
3306/tcp open mysql
5900/tcp open vnc
root@ubuntu: /var/cache/bind
Connected to 10.252.12.244.
220 ProFTPD 1.3.1 Server (Debian) [::ffff:10.252.12.244]
Name (10.252.12.244:hero): hero
331 Password required for hero
Password:
230 User hero logged in
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
200 PORT command successful
150 Opening ASCII mode data connection for file list
drwxr-xr-x 3 hero hero 4096 Nov 27 2010 adminduk
drwxr-xr-x 3 root root 4096 Dec 14 2010 backup
drwxr-xr-x 3 hero hero 4096 Nov 30 2010 coba
drwxr-xr-x 2 hero hero 4096 Nov 25 2010 Desktop
drwxr-xr-x 2 hero hero 4096 Nov 25 2010 Documents
-rw-r--r-- 1 hero hero 357 Nov 25 2010 examples.desktop
drwx------ 2 hero hero 4096 Nov 22 2010 library java
drwx------ 5 hero hero 4096 Dec 15 2010 Maildir
drwxr-xr-x 2 hero hero 4096 Nov 25 2010 Music
-rwx--x--x 1 hero hero 250245120 Jul 2 2010 netbeans-6.9-ml-linux.sh
drwxr-xr-x 4 hero hero 4096 Nov 27 2010 NetBeansProjects
drwxr-xr-x 2 hero hero 4096 Nov 25 2010 Pictures
drwx------ 6 hero hero 4096 Jan 8 2011 program
drwxr-xr-x 2 hero hero 4096 Nov 25 2010 Public
drwxr-xr-x 2 hero hero 4096 Oct 7 13:02 public_html
drwxr-xr-x 2 hero hero 4096 Nov 25 2010 Templates
drwxr-xr-x 2 hero hero 4096 Nov 25 2010 Videos
drwxr-xr-x 2 hero hero 4096 Nov 26 2010 xml
226 Transfer complete
ftp>


root@ubuntu: /var/cache/bind
drwx------ 5 hero hero 4096 Dec 15 2010 Maildir
drwxr-xr-x 2 hero hero 4096 Nov 25 2010 Music
-rwx--x--x 1 hero hero 250245120 Jul 2 2010 netbeans-6.9-ml-linux.sh
drwxr-xr-x 4 hero hero 4096 Nov 27 2010 NetBeansProjects
drwxr-xr-x 2 hero hero 4096 Nov 25 2010 Pictures
drwx------ 6 hero hero 4096 Jan 8 2011 program
drwxr-xr-x 2 hero hero 4096 Nov 25 2010 Public
drwxr-xr-x 2 hero hero 4096 Oct 7 13:02 public_html
drwxr-xr-x 2 hero hero 4096 Nov 25 2010 Templates
drwxr-xr-x 2 hero hero 4096 Nov 25 2010 Videos
drwxr-xr-x 2 hero hero 4096 Nov 26 2010 xml
226 Transfer complete
ftp> ?
Commands may be abbreviated. Commands are:
! debug mdir qc send
$ dir mget sendport site
account disconnect mkdir put size
append exit mls pwd status
ascii form mode quit struct
bell get modtime quote system
binary glob mput recv sunique
bye hash newer reget tenex
case help nmap rstatus tick
cd idle nlist rhelp trace
cdup image ntrans rename type
chmod lcd open reset user
close ls prompt restart umask
cr macdef passive rmdir verbose
delete mdelete proxy runique ?
ftp>


root@ubuntu: /var/cache/bind
root@ubuntu:/var/cache/bind# ftp 10.252.12.244
Connected to 10.252.12.244.
220 ProFTPD 1.3.1 Server (Debian) [::ffff:10.252.12.244]
Name (10.252.12.244:hero): hero
331 Password required for hero
Password:
230 User hero logged in
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> put ?
local: ? remote: ?
local: ?: No such file or directory
ftp> ? put
put send one file
ftp> ? get
get receive file
ftp>

Setelah terinstal peket proftpd selanjutnya adalah konfigurasi file proftpd untuk memberikan rule-rule ftp pada file `/etc/proftpd/proftpd.conf`, lakukan perintah berikut pada console

```
# vi /etc/proftpd/proftpd.conf
```

Setelah itu akan ditampilkan isi file konfigurasi proftpd.conf, kemudian edit/konfigurasi isi file sebagai berikut

```
# /etc/proftpd.conf -- This is a basic ProFTPD configuration
file.
# To really apply changes reload proftpd after modifications.
#

ServerName   "Debian"
ServerType   standalone
DeferWelcome   off

MultilineRFC2228  on
DefaultServer   on
ShowSymlinks   on

TimeoutNoTransfer  600
TimeoutStalled   600
TimeoutIdle   1200
```

```
DisplayLogin            welcome.msg
DisplayFirstChdir       .message
ListOptions             "-l"

DenyFilter   \*.*/

# Uncomment this if you are using NIS or LDAP to retrieve
#passwords:
#PersistentPasswd  off

#Uncomment this if you would use TLS module:
#TLSEngine    on

#Uncomment this if you would use quota module:
#Quotas    on

#Uncomment this if you would use ratio module:
#Ratios    on

# Port 21 is the standard FTP port.
Port    21

#To prevent DoS attacks, set the maximum number of child
#processes
#to 30.    If you need to allow more than 30 concurrent
#connections
#at once, simply increase this value.  Note that this ONLY #works
#in standalone mode, in inetd mode you should use an inetd
#server
```

```
DenyFilter   \*.*/

# Uncomment this if you are using NIS or LDAP to retrieve
#passwords:
#PersistentPasswd  off

#Uncomment this if you would use TLS module:
#TLSEngine    on

#Uncomment this if you would use quota module:
#Quotas    on

#Uncomment this if you would use ratio module:
#Ratios    on

# Port 21 is the standard FTP port.
Port    21

#To prevent DoS attacks, set the maximum number of child
#processes
#to 30.    If you need to allow more than 30 concurrent
#connections
#at once, simply increase this value.  Note that this ONLY #works
#in standalone mode, in inetd mode you should use an inetd
#server
#that allows you to limit maximum number of processes per #
#service
#(such as xinetd)
MaxInstances   30

#Set the user and group that the server normally runs at.
User    nobody
```

```
Group    nogroup

#Umask 022 is a good standard umask to prevent new files and
#dirs
#(second parm) from being group and world writable.
#Umask    022  022
#Normally, we want files to be overwriteable.
#AllowOverwrite   on

#Delay engine reduces impact of the so-called Timing Attack
#described in
#http://security.lss.hr/index.php?page=details&ID=LSS-2004-#10-02
#It is on by default.
#DelayEngine    off

# A basic anonymous configuration, no upload directories.

 <Anonymous ~ftp>
   User    ftp
   Group    nogroup
#We want clients to be able to login with "anonymous" as well #as
"ftp"

   UserAlias   anonymous ftp

#Cosmetic changes, all files belongs to ftp user

   DirFakeUser on ftp
   DirFakeGroup on ftp
   RequireValidShell  off
#
#Limit the maximum number of anonymous logins

   MaxClients   10

#We  want  'welcome.msg'  displayed  at  login,  and  '.message'
#displayed
#in each newly chdired directory.

   DisplayLogin   welcome.msg
   DisplayFirstChdir  .message

#Limit WRITE everywhere in the anonymous chroot
```

```
   DirFakeUser on ftp
   DirFakeGroup on ftp
   RequireValidShell  off
#
#Limit the maximum number of anonymous logins

   MaxClients   10

#We  want  'welcome.msg'  displayed  at  login,  and  '.message'
#displayed
#in each newly chdired directory.

   DisplayLogin   welcome.msg
   DisplayFirstChdir  .message

#Limit WRITE everywhere in the anonymous chroot

   <Directory *>
      <Limit WRITE>
       DenyAll
      </Limit>
   </Directory>

#
#    # Uncomment this if you're brave.
#    # <Directory incoming>
#    #    # Umask 022 is a good standard umask to prevent new
#         files and dirs
#    #    # (second parm) from being group and world writable.
#    #       Umask    022  022
#    #             <Limit READ WRITE>
#    #             DenyAll
#    #             </Limit>
#    #             <Limit STOR>
#    #             AllowAll
#    #             </Limit>
#    # </Directory>
#
```

```
</Anonymous>
```

Konfigurasi diatas adalah untuk memberikan rule-rule pada client yang akan melakukan ftp pada computer server, pada konfigurasi diatas anonymous diperbolehkan untuk melakukan ftp ke server ftp yang ditunjukkan pada konfigurasi berikut :

```
<Anonymous ~ftp>
user               ftp
group              nogroup
userAlias          anonymous ftp
RequireValidShell off
MaxClients         10
DisplayLogin             welcome.msg
DisplayFirstChdir .message
<Directory>
      <Limit WRITE>
      </Limit WRITE>
</Directory>
<Directory incoming>
Umask       022  022
      <Limit READ WRITE>
#     DenyAll
      </Limit>

      <Limit STOR>
#     AllowAll
      </Limit>
</Directory>
</Anonymous>
```

Pada konfigurasi anonymous diatas adalah untuk memberikan izin kepada siapa saja yang ingin melakukan ftp ke komputer ftp server, folder atau file yang diperbolehkan diakses berada pada

```
        <Limit STOR>
#       AllowAll
        </Limit>
</Directory>
</Anonymous>
```

Pada konfigurasi anonymous diatas adalah untuk memberikan izin kepada siapa saja yang ingin melakukan ftp ke komputer ftp server, folder atau file yang diperbolehkan diakses berada pada

2. *Konfigurasi pada komputer client*

Pada computer cliet tidak diperlukan mngkonfigurasi file melainkan hanya menginstal paket ftp, untuk itu pada computer client lakukan prosedure sebagai berikut :

a. cek IP address

```
#ifconfig
```

b. cek FTP client sudah terinstall atau belum

```
#dpkg -1| grep ftp
```

c. jika paket ftp client belum terinstall maka install paket ftp dengan perintah :

```
#apt-get install ftp
```

Dengan melakukan procedure diatas computer client selanjutnya dapat melakukan ftp ke computer, untuk melakukan ftp dari computer client ke computer server lakukan procedure berikut :

- misalnya IP dari computer ftp server adalah 10.252.108.12 maka lakukan perintah FTP sebagai berikut :

```
#ftp 10.252.108.12
connected to 10.252.108.12 . comnet, eepis-its.edu
220proFTPD 1.2.10 server (debian) (10.252.108.12)
name (10.252.108.12 : root) : anonymous
331 guest login OK, send your complete e-mail as
password
password:
331 password required for harun
231 user anonymous logged in
remote system is UNIX
using binary mode to transfer files.
ftp>ls
200 PORT command successful
150 opening ASCII mode data connection for file list
drwx------  ftp   (?)  4096 Jan    16    04:17 master
drwx------  ftp   (?)  4096 Jan    17    03:47 network
drwx------  ftp   (?)  4096 Jan         16         03:45
Multimedia
drwx------  ftp   (?)  4096 Jan    20    07:23 driver
drwx------  ftp   (?)  4096 Jan    16    03:44 video
226 transfer complete
```

- untuk keluar dari ftp lakukan perintah sebagai berikut

```
ftp>quit
```

3. *Pada penerapan FTP diatas adalah dilakukan oleh computer client dengan login sebagai anonymous, jiga kita ingin melakukan ftp pada computer server dengan login tertentu sebagai user pada computer FTP server maka pada computer server harus dibuat user account untuk client dengan cara :*

```
#adduser (user name)
#adduser harun
Adding user harun...
Adding new group harun(1000).
Adding new user harun (1000) with group harun.
Creating home director /home/harun.
Copyng files from /etc/skel
Enter the new value,or press return for the default
     Full Name []:
     Room Number []:
     Work Phone []:
     Home Phone []:
     Other []:
Is the information correct? [y/n] y
```

Dari computer client dikoneksikan ke server dengan cara login menggunakan user yang telah dibuat oleh server.

```
#ftp (IP Server)
misal : #ftp 10.252.108.12
connected to 10.252.108.12 . comnet, eepis-its.edu
```

```
   220proFTPD 1.2.10 server (debian) (10.252.108.12)
   name (10.252.108.12 : root) : harun
   331 password required for harun
   230 user harun logged in
   remote system is UNIX
   using binary mode to transfer files.
   ftp>ls
   200 PORT command successful
   150 opening ASCII mode data connection for file list
   -rwx------ harun  (?)  600  Jan    16    04:17 tes.c
   -rw-r--r--- harun  (?)  0    Jan    17    03:47 tes.tes
   drwxr-xr-x harun     (?)    4096 Jan    16    03:45 Chat
   drwx------ harun     (?)    4096 Jan    20    07:23 Data
   drwxr-xr-x harun  (?)  4096 Jan    16    03:44
public_html
   226 transfer complete
   ftp>quit
```

Buat file dengan perintah

```
#vi (nama file)
```

- Upload file dengan perintah :

```
ftp>mput (nama file)
```

- Mengambil file dari FTP server :

```
ftp>mget (nama file)
```

```
(username) hero
331 Password required for hero.
Password:
230 User hero logged in.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
200 PORT command successful
150 Opening ASCII mode data connection for file list
drwxrwxrwx   4 ftp      ftp          4096 Aug 31 11:38 Desktop
-rw-r--r--   1 ftp      ftp           101 Apr 29 19:17 catatan
-rw-r--r--   1 ftp      ftp            35 Apr 29 19:17 catatan~
drwxr-xr-x   4 ftp      ftp          4096 Sep  3 02:57 jaringan
-rw-r--r--   1 ftp      ftp        161792 Nov 18  2008 proposal-3.doc
-rw-r--r--   1 ftp      ftp         44784 Nov 18  2008 proposal-3.pdf
drwxr-xr-x   2 ftp      ftp          4096 May 14 08:10 public_html
-rw-r--r--   1 ftp      ftp          8729 Nov 18  2008 test.pdf
226 Transfer complete.
ftp> get test.pdf
local: test.pdf remote: test.pdf
200 PORT command successful
150 Opening BINARY mode data connection for test.pdf (8729 bytes)
226 Transfer complete.
8729 bytes received in 0.11 secs (75.1 kB/s)
ftp> quit
221 Goodbye.
debian:~# ls
ip1.sh  ip.sh  itb.sh  share.sh  test.pdf  unshare.sh
debian:~# rm test.pdf
debian:~#
```

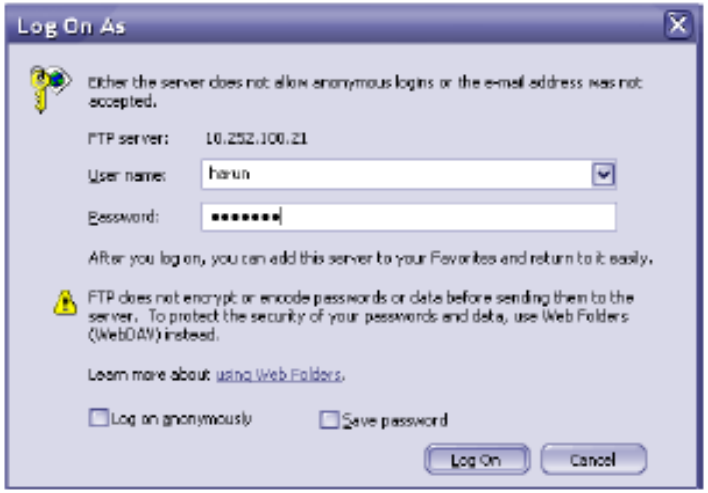
```
debian:~# ls
ip1.sh  ip.sh  itb.sh  share.sh  unshare.sh
debian:~# ftp localhost
Connected to localhost.
220 ProFTPD 1.3.0 Server (Debian) [127.0.0.1]
Name (localhost:root): hero
331 Password required for hero.
Password:
230 User hero logged in.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
200 PORT command successful
150 Opening ASCII mode data connection for file list
drwxrwxrwx   4 hero     hero         4096 Aug 31 11:38 Desktop
-rw-r--r--   1 hero     hero          101 Apr 29 19:17 catatan
-rw-r--r--   1 hero     hero           35 Apr 29 19:17 catatan~
drwxr-xr-x   4 hero     hero         4096 Sep  3 02:57 jaringan
-rw-r--r--   1 hero     hero       161792 Nov 18  2008 proposal-3.doc
-rw-r--r--   1 hero     hero        44784 Nov 18  2008 proposal-3.pdf
drwxr-xr-x   2 hero     hero         4096 May 14 08:10 public_html
-rw-r--r--   1 hero     hero         8729 Nov 18  2008 test.pdf
226 Transfer complete.
ftp> pwd
257 "/home/hero" is current directory.
ftp> put ip.sh
local: ip.sh remote: ip.sh
200 PORT command successful
150 Opening BINARY mode data connection for ip.sh
226 Transfer complete.
99 bytes sent in 0.00 secs (531.2 kB/s)
ftp> ls
200 PORT command successful
150 Opening ASCII mode data connection for file list
drwxrwxrwx   4 hero     hero         4096 Aug 31 11:38 Desktop
-rw-r--r--   1 hero     hero          101 Apr 29 19:17 catatan
-rw-r--r--   1 hero     hero           35 Apr 29 19:17 catatan~
-rw-r--r--   1 hero     hero           99 Sep  9 09:29 ip.sh
drwxr-xr-x   4 hero     hero         4096 Sep  3 02:57 jaringan
-rw-r--r--   1 hero     hero       161792 Nov 18  2008 proposal-3.doc
-rw-r--r--   1 hero     hero        44784 Nov 18  2008 proposal-3.pdf
```

4. *Pada contoh procedure akses server ftp diatas dilakukan oleh client yang memiliki sistem operasi unix, jika client windows ingin melakukan ftp ke computer ftp server maka prosesnya adalah sama dengan procedure yang dilakukan oleh sistem operasi unix, yaitu dengan mengetikkan perintah*
   `FTP <IP_FTP_SERVER>` pada command prompt (`C:\`) atau pada browser (misalnya IE) ketikan pada address dengan perintah `FTP://<IP_FTP_SERVER>`

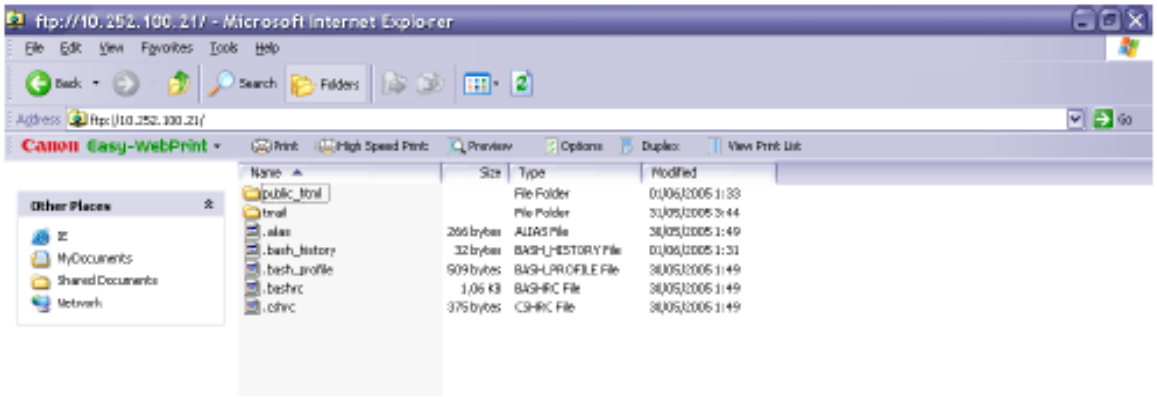
   - Contoh FTP dari computer client dengan sistem operasi windows yang melakukan FTP ke computer FTP server dengan sistem operasi UNIX base menggunakan command prompt C:\

     Click tombol START > RUN kemudian ketikkan cmd dan tekan enter atau klick tombol OK.
     Selanjutnya akan tampil command prompt yang defaulnya berwarna hitam, kemudian ketikkan perintah sebagai berikut untuk melakukan FTP ke computer server (misalnya IP computer FTP server adalah `10.252.100.21`)

```
C:\>ftp 10.252.100.21
Connected to 10.252.100.21.
220 localhost FTP server (Version 6.4/OpenBSD/Linux-ftpd-
0.17) ready.
User (10.252.100.21:(none)): harun
```



Setelah username dan password yang kita berikan adalah valid maka akan ditampilkan data-data pada halaman browser sebagai berikut :



Latihan Soal

1. Jelaskan kegunaan dari FTP !
2. Bagaimana cara kerja FTP !
3. Cari di internet jenis nama paket installasi FTP !
4. Sebutkan fungsi yang dimiliki oleh FTP !