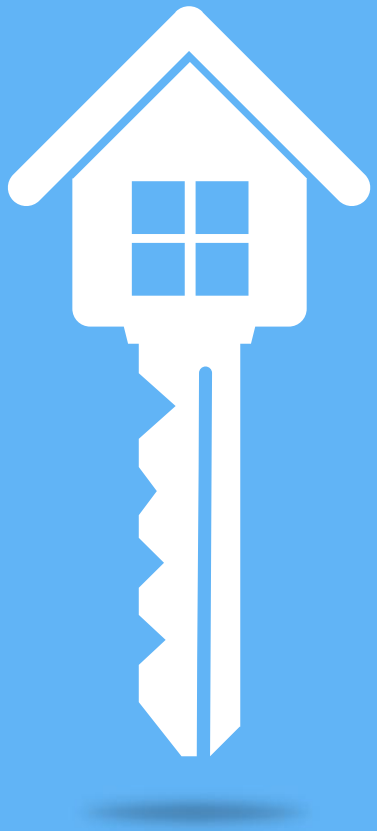
FINAL PROJECT JARINGAN KOMPUTER

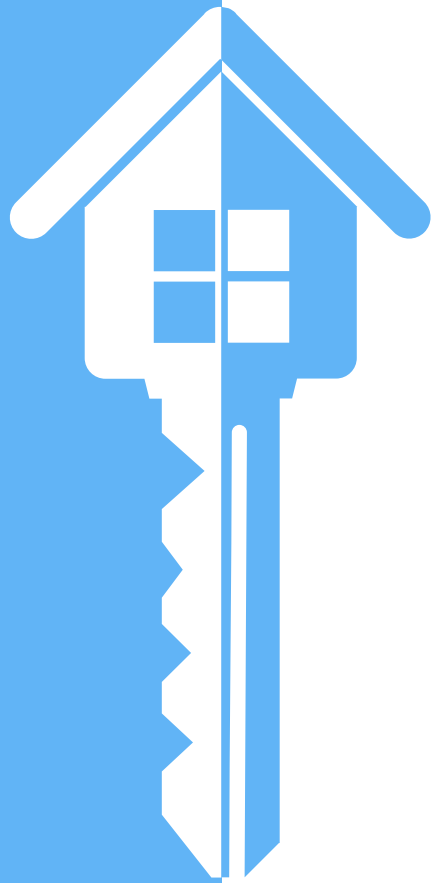
SI-06

Senin, 24 Juni 2019



Presented by:

1. Padang Perwira Yudha (17.12.0349)
2. Lola Tridinatasya (17.12.0351)
3. Amanda Evi Jayanti (17.12.0356)
4. Yurike Pratiwi (17.12.0397)
5. Nurul Hidayati (17.12.0404)

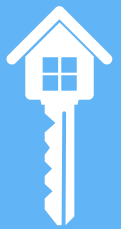


PENDAHULUAN

Server adalah suatu sistem yang menyediakan layanan tertentu untuk beberapa pengguna dalam suatu jaringan komputer. Sebuah server dilengkapi dengan sistem operasi khusus untuk mengontrol dan mengakses seluruh sumber daya y ang ada dalam sebuah jaringan. Untuk melakukan hal tersebut sebuah server membutuhkan sebuah sistem khusus yang bias anya disebut sistem operasi jaringan. Ada berbagai macam server yang sering diaplikasikan dalam kegiatan sehari-hari seper ti web server, mail server, ftp server, ssh, dan database.

Web Server digunakan sebagai penyedia layanan web yang nantinya web tersebut dapat diakses oleh pihak luar, sedangkan mail server adalah server yang menjadi pusat lalu lintas data email dengan dns yang ada pada server tersebut, ft p server digunakan sebagai protokol lalu lintas data untuk mengakses data yang berada pada server dan memiliki fungsi yan g sama dengan ssh, perbedaannya ssh dapat mengakses terminal dalam server tersebut, selanjutnya database server adalah server yang digunakan untuk menyimpan database. Layanannya dapat berupa MySQL, PostgreSQL dan lain sebagainya ....

Diharapkan server yang telah dilengkapi dengan layanan yang disebutkan di atas dapat memudahkan develope r dalam mengembangkan aplikasi yang dibuat, server tersebut pun juga bisa digunakan sebagai media berbagi file, penyimp anan database, dan pengiriman email



KAJIAN LITERATUR

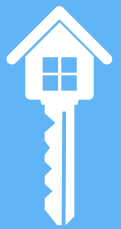
Web Server : adalah suatu perangkat lunak (software) dalam server yang berfungsi untuk menerima permintaan (request) da ri client atau browser berupa halaman website melalui protokol HTTP/ HTTPS, lalu merespon permintaan tersebut dalam ben tuk halaman website berupa dokumen HTML atau PHP.

Mail Server : Mail server adalah program daemon yang bekerja menampung dan mendistribusikan email dalam suatu jaring an. Protokol yang umum digunakan antara lain protokol SMTP, POP3 dan IMAP.

FTP Server : suatu protokol jaringan yang berfungsi untuk tukar-menukar data (file) dalam sebuah jaringan yang menggunak an TCP koneksi.

SSH : SSH adalah aplikasi pengganti remote login seperti telnet, rsh, dan rlogin, yang jauh lebih aman. Fungsi utama aplikasi ini adalah untuk mengakses mesin secara remote. Sama seperti telnet, SSH Client menyediakan User dengan Shell untuk re mote ke mesin.

Database Server : Server basis data adalah sebuah program komputer yang menyediakan layanan pengelolaan basis data da n melayani komputer atau program aplikasi basis data yang menggunakan model klien/server.



KONSEP & METODOLOGI

Web Server

1. Install Aplikasi Web Server (Apache2)
2. Mengubah file konfigurasi apache2
3. Mengizinkan akses firewall
4. Testing Web Server

FTP Server

1. Menginstall Vsftpd
2. Memperbolehkan FTP traffic dari firewall
3. Membuat direktori pengguna
4. Mengonfigurasikan vsftpd
5. Mengetes koneksi dengan FileZilla

SSH

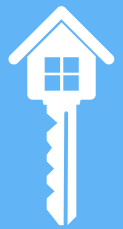
1. Menginstall OpenSSH server
2. Mengecek layanan SSH telah berjalan
3. Mengizinkan akses firewall
4. Pengetesan

Database Server

1. Install MySQL
2. Mengizinkan akses firewall
3. Memulai Layanan.
4. Konfigurasi MySQL agar dapat diakses secara remote
5. Menambah user dengan privileges
6. Testing

Mail Server

1. Install Bind
2. Konfigurasi Bind
3. Konfigurasi Koneksi & DNS
4. Install postfix
5. Tambah user
6. Testing Email



KONSEP & METODOLOGI

Web Server :

1. Install apache2

```
fpjarkom@ubuntu:~$ sudo apt-get update
[sudo] password for fpjarkom:
Get:1 http://security.ubuntu.com/ubuntu xenial-security InRelease [109 kB]
Hit:2 http://us.archive.ubuntu.com/ubuntu xenial InRelease
Get:3 http://us.archive.ubuntu.com/ubuntu xenial-updates InRelease [109 kB]
Get:4 http://us.archive.ubuntu.com/ubuntu xenial-backports InRelease [107 kB]
Fetched 325 kB in 5s (55.1 kB/s)
Reading package lists... Done
fpjarkom@ubuntu:~$ sudo apt-get install -y apache2
Reading package lists... Done
Building dependency tree
Reading state information... Done
```

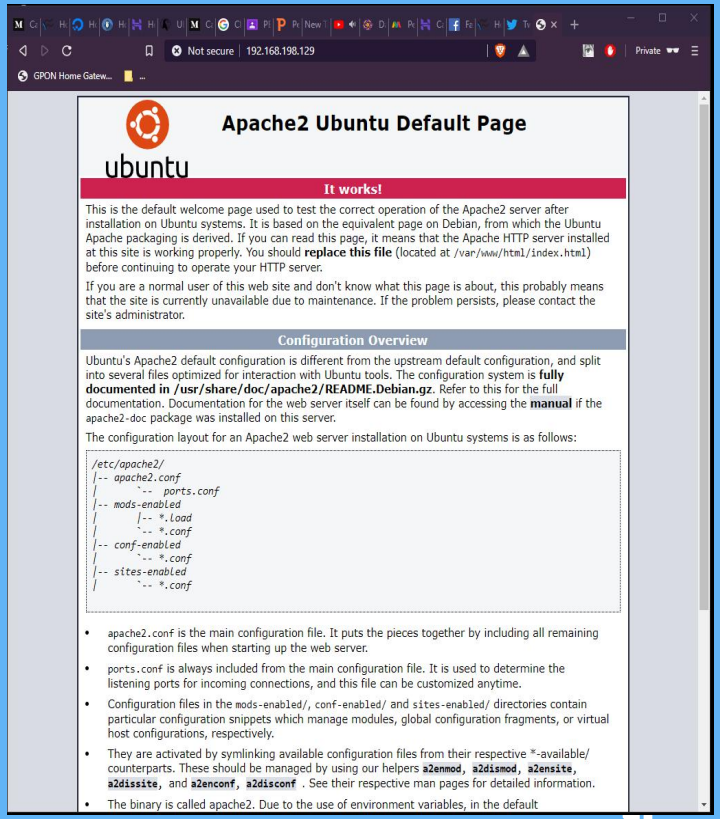
2. Mengubah file konfigurasi apache2

```
# Include generic snippets of statements
IncludeOptional conf-enabled/*.conf

# Include the virtual host configurations:
IncludeOptional sites-enabled/*.conf

# vim: syntax=apache ts=4 sw=4 sts=4 sr noet

ServerName 192.168.198.129
```

3. Mengizinkan akses firewall

```
Syntax OK
fpjarkom@ubuntu:~$
fpjarkom@ubuntu:~$
fpjarkom@ubuntu:~$
fpjarkom@ubuntu:~$ sudo nano /etc/apache2/apache2.conf
fpjarkom@ubuntu:~$ sudo apache2ctl configtest
Syntax OK
fpjarkom@ubuntu:~$ sudo systemctl restart apache2
fpjarkom@ubuntu:~$ sudo ufw allow in "Apache Full"
Rules updated
Rules updated (v6)
fpjarkom@ubuntu:~$
```

4. Testing web server



KONSEP & METODOLOGI

FTP Server :

1. Install Vsftpd

```
fpjarkom@ubuntu: ~
fpjarkom@ubuntu:~$ sudo apt-get install vsftpd
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
```

2. Memperbolehkan FTP traffic dari firewall

```
fpjarkom@ubuntu:~$ sudo ufw allow 20/tcp

Rule added
Rule added (v6)
fpjarkom@ubuntu:~$
fpjarkom@ubuntu:~$ sudo ufw allow 21/tcp
Rule added
Rule added (v6)
fpjarkom@ubuntu:~$ sudo ufw allow 990/tcp
Rule added
Rule added (v6)
fpjarkom@ubuntu:~$ sudo ufw allow 40000:50000/tcp
Rule added
Rule added (v6)
fpjarkom@ubuntu:~$
```

3. Membuat direktori pengguna

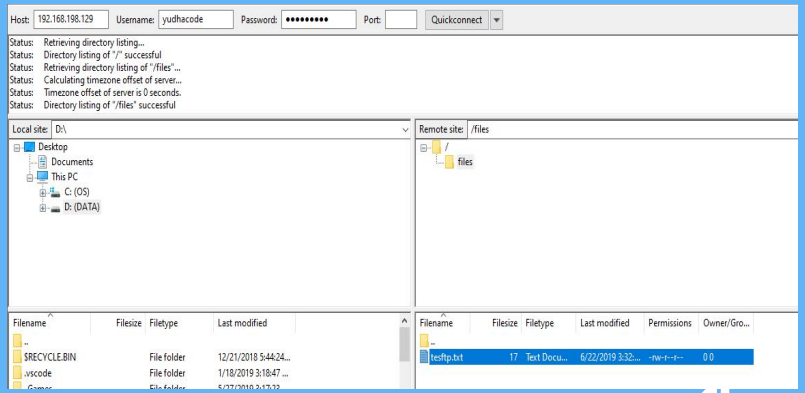
```
fpjarkom@ubuntu:/home$ sudo adduser yudhacode
Adding user `yudhacode' ...
Adding new group `yudhacode' (1001) ...
Adding new user `yudhacode' (1001) with group `yudhacode' ...
Creating home directory `/home/yudhacode' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for yudhacode
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] Y
fpjarkom@ubuntu:/home$ sudo mkdir yudhacode/ftp
fpjarkom@ubuntu:/home$ sudo chown nobody:nogroup yudhacode/ftp
fpjarkom@ubuntu:/home$ sudo chmod a-w yudhacode/ftp
fpjarkom@ubuntu:/home$ sudo ls -la yudhacode/ftp
total 8
dr-xr-xr-x 2 nobody    nogroup   4096 Jun 22 08:30 .
drwxr-xr-x 3 yudhacode yudhacode 4096 Jun 22 08:30 ..
fpjarkom@ubuntu:/home$ sudo mkdir yudhacode/ftp/files
fpjarkom@ubuntu:/home$ sudo chown yudhacode:yudhacode yudhacode/ftp/files
fpjarkom@ubuntu:/home$ echo "testing file ftp" | sudo tee yudhacode/ftp/files/tesftp.txt
testing file ftp
fpjarkom@ubuntu:/home$
```

LibreOffice Impress

4. Mengonfigurasikan vsftpd

```
#
# Uncomment this to indicate that vsftpd use a utf8 filesystem.
#utf8_filesystem=YES

user_sub_token=$USER
local_root=/home/$USER/ftp

pasv_min_port=40000
pasv_max_port=50000

userlist_enable=YES
userlist_file=/etc/vsftpd.userlist
userlist_deny=NO
```

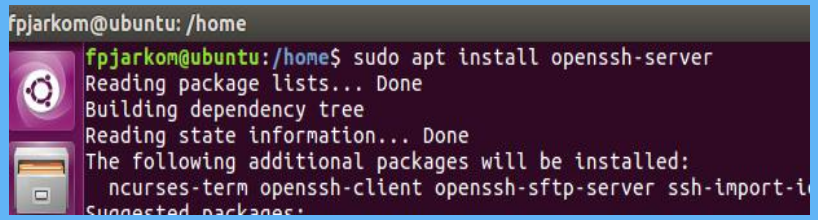
5. Mengetes koneksi dengan filezilla



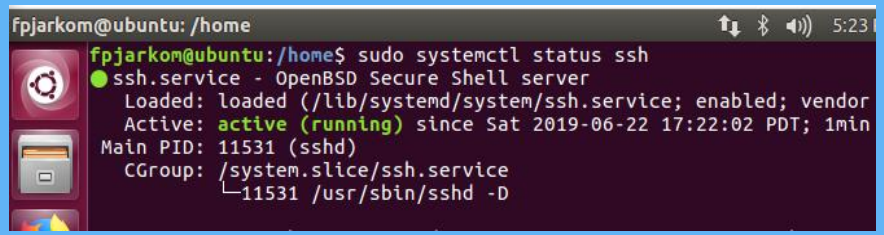
KONSEP & METODOLOGI

SSH :

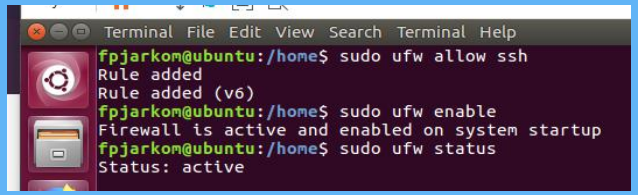
1. Menginstall OpenSSH server



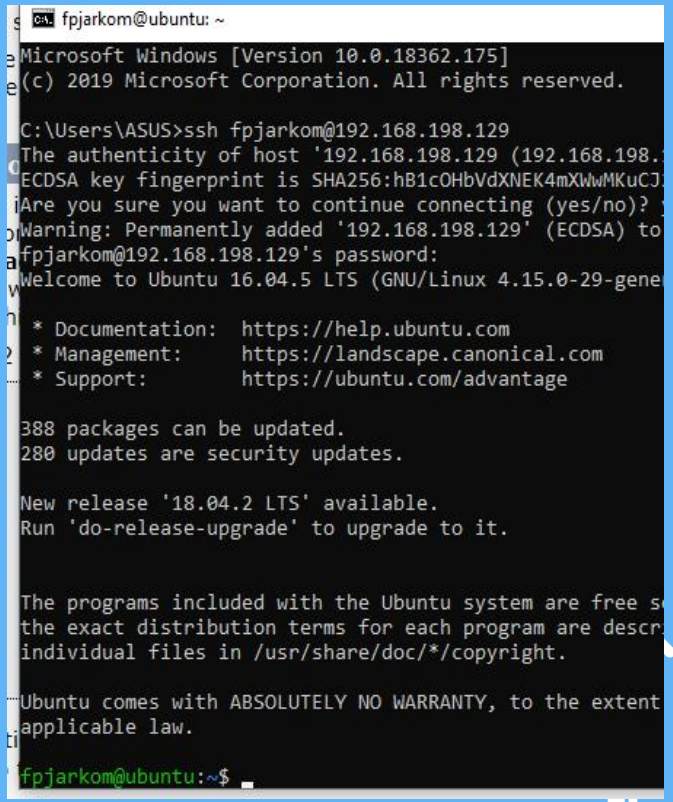
2. Mengecek layanan SSH telah berjalan



3. Mengizinkan akses firewall



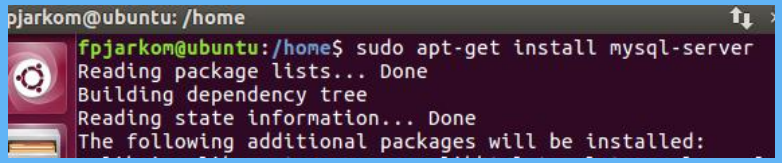
4. Pengetesan



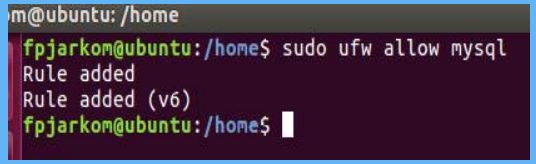
KONSEP & METODOLOGI

Database Server :

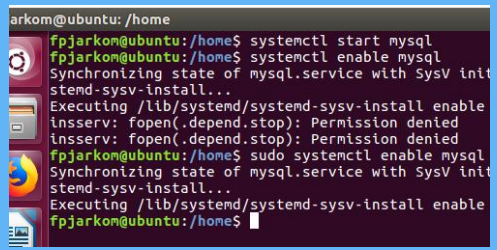
1. Install MySQL



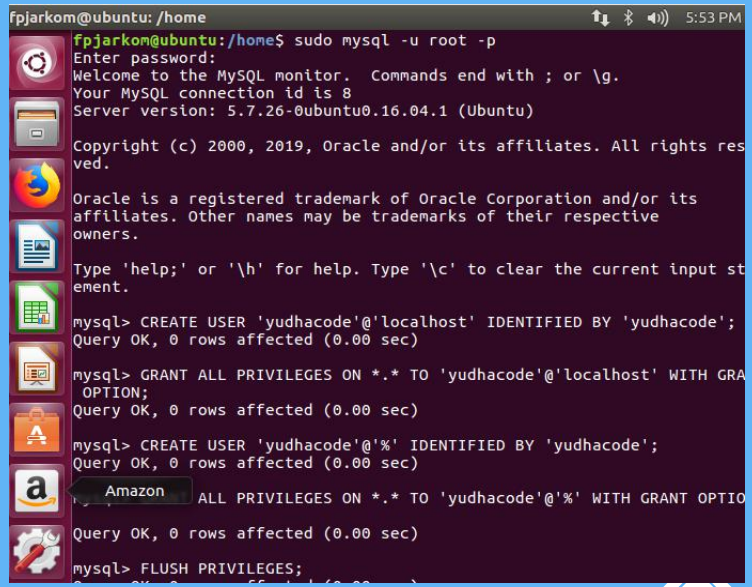
2. Mengizinkan akses firewall



3. Memulai Layanan.



5. Menambah user dengan pri veleges

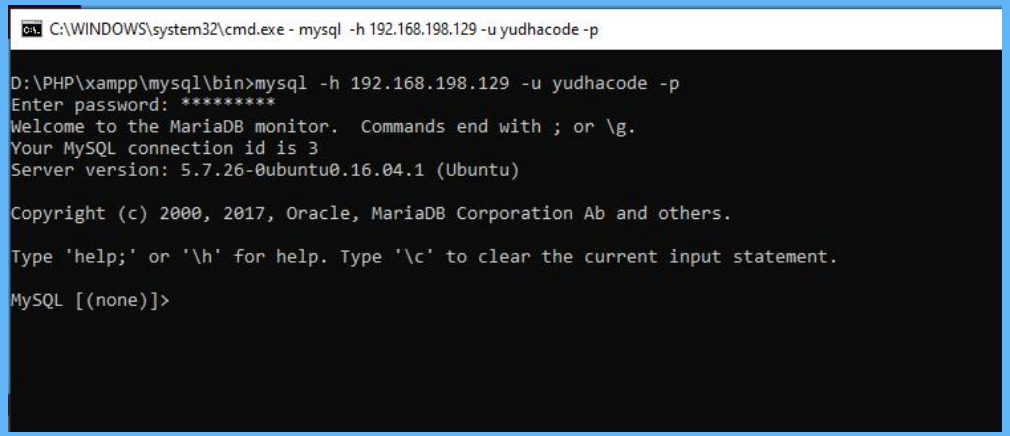


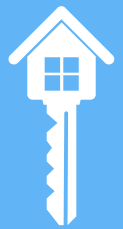
KONSEP & METODOLOGI

6. Konfigurasi MySQL agar dapat diakses secara remote /etc/mysql/mysql.conf.d/mysqld.cnf

```
#
# Instead of skip-networking the default is now to listen only on
# localhost which is more compatible and is not less secure.
bind-address            = 0.0.0.0
#
```

7. Remote acces database dari windows dengan jalur network yang sama





KONSEP & METODOLOGI

Mail Server :

1. Install Bind

```
fpjarkom@ubuntu: /home
fpjarkom@ubuntu:/home$ sudo apt install bind9
Reading package lists... Done
Building dependency tree
```

2. Konfigurasi Bind

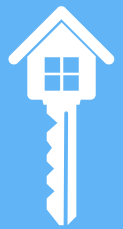
```
GNU nano 2.5.3        File: /var/cache

$ORIGIN fpjarkom.com.
$TTL 1D
@       IN SOA     ns1 root(
                1 ;serial
                1D ;refresh
                2H ;retry
                2W ;expire
                5H ;minimum
);
@       IN        NS ns1
ns1     IN        A 192.168.198.129
mail    IN        A 192.168.198.129
@       IN        MX 5 mail
```

```
GNU nano 2.5.3        File: /etc/bi

zone "fpjarkom.com." {
        type master;
        file "db.fpjarkom";
};
```

```
// forwarders {
        8.8.8.8;
// };
```

3. Konfigurasi Koneksi & DNS

```
fpjarkom@ubuntu:/home$ sudo nmcli connection show
NAME                UUID                                  TYPE            DEVICE
Wired connection 1  90aedec3-755a-3787-bb3b-d4a5645e7e9d  802-3-ethernet  ens33
fpjarkom@ubuntu:/home$ sudo nmcli connection edit "Wired connection 1"

===| nmcli interactive connection editor |===

Editing existing '802-3-ethernet' connection: 'Wired connection 1'

Software Updater
' for available commands.
Type 'describe [<setting>.<prop>]' for detailed property description.

You may edit the following settings: connection, 802-3-ethernet (ethernet), 802-1x, dcb
, ipv4, ipv6
nmcli> remove ipv4.dns
nmcli> set ipv4.dns 192.168.198.129
nmcli> save
Connection 'Wired connection 1' (90aedec3-755a-3787-bb3b-d4a5645e7e9d) successfully upd
ated.
nmcli> quit
fpjarkom@ubuntu:/home$
```



KONSEP & METODOLOGI

4. Install postfix

```
fpjarkom@mail:~$ sudo apt install postfix
[sudo] password for fpjarkom:
Reading package lists... Done
Building dependency tree
Reading state information... Done
```

5. Menambah User

```
fpjarkom@mail: ~
fpjarkom@mail:~$ sudo usermod -aG mail $(whoami)
fpjarkom@mail:~$ sudo useradd -m -G mail -s /bin/bash/ tesemail
fpjarkom@mail:~$ sudo passwd tesemail
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
fpjarkom@mail:~$
```

6. Pengetesan pengiriman email

```
fpjarkom@mail: ~
fpjarkom@mail:~$ mail tesemail@fpjarkom.com
Cc: testingemail
Subject: Tes Email Satu
Halo ini pengiriman email pertama
fpjarkom@mail:~$
```

7. Pengecekan email

```
fpjarkom@mail:~$ mail
"/var/mail/fpjarkom": 1 message 1 new
>N   1 Mail Delivery Syst Sat Jun 22 18:53  68/2310  Undelivered Mail Returned
? 1
Return-Path: <>
```

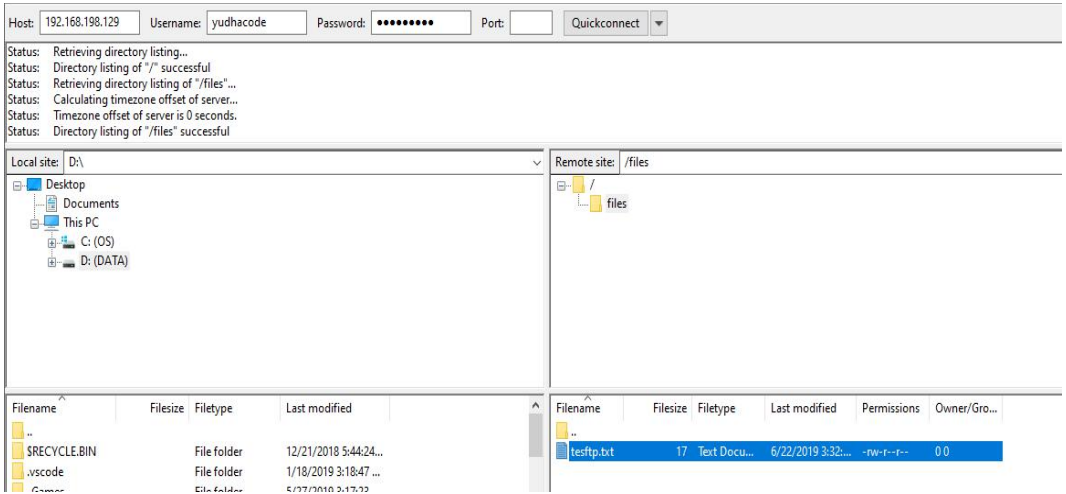
```
Return-Path: <fpjarkom@mail.fpjarkom.com>
Received: by mail.fpjarkom.com (Postfix, from userid 1000)
        id CC8E4A6ACA; Sat, 22 Jun 2019 18:53:11 -0700 (PDT)
To: <tesemail@fpjarkom.com>
Cc: <testingemail@mail.fpjarkom.com>
Subject: Tes Email Satu
X-Mailer: mail (GNU Mailutils 2.99.99)
Message-Id: <20190623015311.CC8E4A6ACA@mail.fpjarkom.com>
Date: Sat, 22 Jun 2019 18:53:11 -0700 (PDT)
From: fpjarkom@mail.fpjarkom.com (fpjarkom)

Halo ini pengiriman email pertama

--CC8E4A6ACA.1561254791/mail.fpjarkom.com--
```

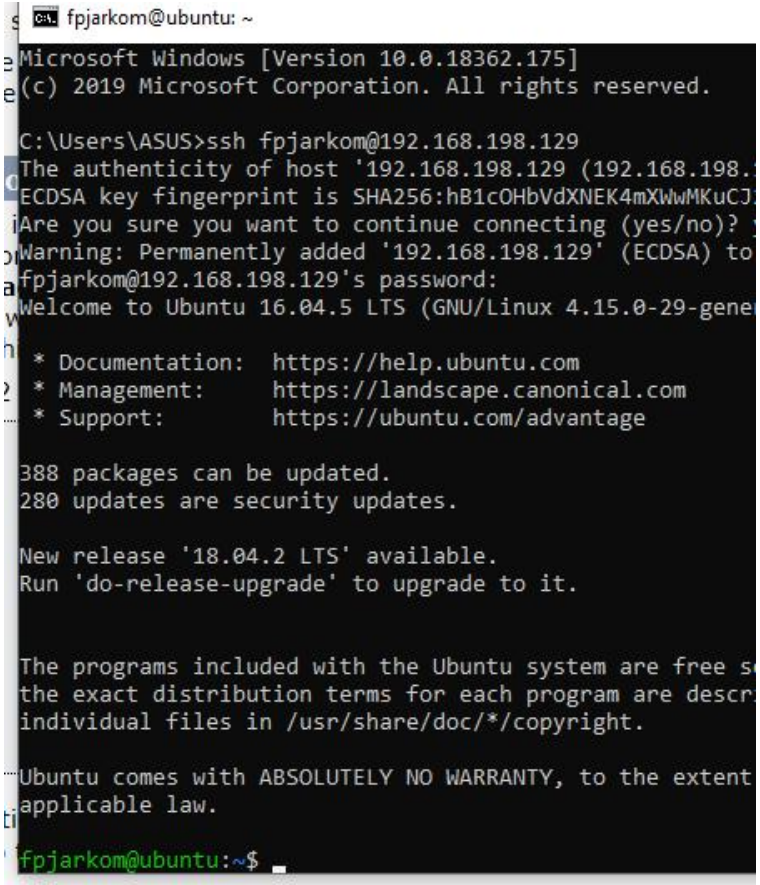
KESIMPULAN

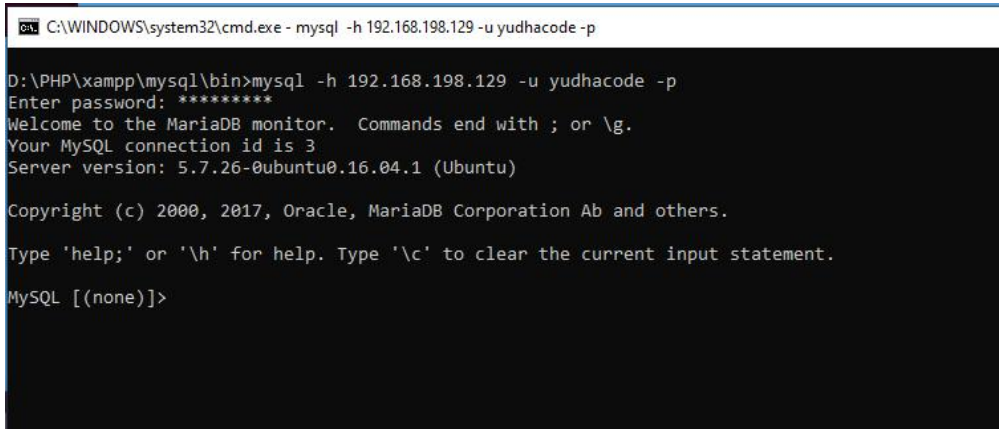
Dalam pembuatan dan implementasi server menggunakan linux ubuntu 16.04.01 LTS bisa dikatakan cukup ideal, Hal ini dikarenakan linux dapat diperoleh secara gratis dan dapat disebarluaskan secara bebas. Selain itu, linux merupakan sistem operasi yang cukup handal untuk memenuhi kebutuhan dalam menyediakan layanan-layanan server. Dan dengan dukungan komunitas yang sangat besar di internet, memberikan kemudahan penggunaan dalam hal penggunaannya baik sebagai sistem operasi desktop maupun sebagai sistem operasi server.

HASIL


Not secure
192.168.198.129
Private
GPON Home Gatew...
Apache2 Ubuntu Default Page
ubuntu
It works!
This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should replace this file (located at /var/www/html/index.html) before continuing to operate your HTTP server.
If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.
Configuration Overview
Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is fully documented in /usr/share/doc/apache2/README.Debian.gz. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the manual if the apache2-doc package was installed on this server.
The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:
/etc/apache2/
|-- apache2.conf
| `-- ports.conf
|-- mods-enabled
| |-- *.load
| `-- *.conf
|-- conf-enabled
| `-- *.conf
|-- sites-enabled
| `-- *.conf
apache2.conf is the main configuration file. It puts the pieces together by including all remaining configuration files when starting up the web server.
ports.conf is always included from the main configuration file. It is used to determine the listening ports for incoming connections, and this file can be customized anytime.
Configuration files in the mods-enabled/, conf-enabled/ and sites-enabled/ directories contain particular configuration snippets which manage modules, global configuration fragments, or virtual host configurations, respectively.
They are activated by symlinking available configuration files from their respective *-available/ counterparts. These should be managed by using our helpers a2enmod, a2dismod, a2ensite, a2dissite, and a2enconf, a2disconf . See their respective man pages for detailed information.
The binary is called apache2. Due to the use of environment variables, in the default


Host: 192.168.198.129
Username: yudhacode
Password:
Port:
Quickconnect
Status: Retrieving directory listing...
Status: Directory listing of "/" successful
Status: Retrieving directory listing of "/files"...
Status: Calculating timezone offset of server...
Status: Timezone offset of server is 0 seconds.
Status: Directory listing of "/files" successful
Local site: D:\
Desktop
Documents
This PC
C: (OS)
D: (DATA)
Remote site: /files
/
files
Filename
Filesize
Filetype
Last modified
$RECYCLE.BIN
File folder
12/21/2018 5:44:24...
.vscode
File folder
1/18/2019 3:18:47 ...
Permissions
Owner/Gro...
tesftp.txt
17
Text Docu...
6/22/2019 3:32:...
-rw-r--r--
0 0


fpjarkom@ubuntu: ~
Microsoft Windows [Version 10.0.18362.175]
(c) 2019 Microsoft Corporation. All rights reserved.
C:\Users\ASUS>ssh fpjarkom@192.168.198.129
The authenticity of host '192.168.198.129 (192.168.198.
ECDSA key fingerprint is SHA256:hB1cOHbVdXNEK4mXWwMKuCJ
Are you sure you want to continue connecting (yes/no)?
Warning: Permanently added '192.168.198.129' (ECDSA) to
fpjarkom@192.168.198.129's password:
Welcome to Ubuntu 16.04.5 LTS (GNU/Linux 4.15.0-29-gene
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage
388 packages can be updated.
280 updates are security updates.
New release '18.04.2 LTS' available.
Run 'do-release-upgrade' to upgrade to it.
The programs included with the Ubuntu system are free s
the exact distribution terms for each program are descr
individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent
applicable law.
fpjarkom@ubuntu:~$


C:\WINDOWS\system32\cmd.exe - mysql -h 192.168.198.129 -u yudhacode -p
D:\PHP\xampp\mysql\bin>mysql -h 192.168.198.129 -u yudhacode -p
Enter password: *********
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MySQL connection id is 3
Server version: 5.7.26-0ubuntu0.16.04.1 (Ubuntu)
Copyright (c) 2000, 2017, Oracle, MariaDB Corporation Ab and others.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
MySQL [(none)]>

```
fpjarkom@mail:~$ mail
"/var/mail/fpjarkom": 1 message 1 new
>N   1 Mail Delivery Syst Sat Jun 22 18:53  68/2310  Undelivered Mail Returned
? 1
Return-Path: <>
```

```
Return-Path: <fpjarkom@mail.fpjarkom.com>
Received: by mail.fpjarkom.com (Postfix, from userid 1000)
        id CC8E4A6ACA; Sat, 22 Jun 2019 18:53:11 -0700 (PDT)
To: <tesemail@fpjarkom.com>
Cc: <testingemail@mail.fpjarkom.com>
Subject: Tes Email Satu
X-Mailer: mail (GNU Mailutils 2.99.99)
Message-Id: <20190623015311.CC8E4A6ACA@mail.fpjarkom.com>
Date: Sat, 22 Jun 2019 18:53:11 -0700 (PDT)
From: fpjarkom@mail.fpjarkom.com (fpjarkom)

Halo ini pengiriman email pertama

--CC8E4A6ACA.1561254791/mail.fpjarkom.com--
```

KENDALA DAN SOLUSI

Kendala

Command yang rumit bila tidak paham di luar kepala dan serta perub
ahan file konfigurasi yang jika salah menulis dapat memengaruhi pros
es penginstalan

Solusi

Mempelajari sepenuhnya command bash, dan lakukan backup file de
ngan perintah cp sebelum memproses konfigurasi file jika terjadi kesal
ahan dalam proses perubahannya

REFERENSI

1. https://medium.com/hammercode/cara-install-apache-mysql-php-phpmyadmin-di-linux-e6ba341ec14a

2. https://www.hostinger.co.id/tutorial/cara-membuat-ftp-server/#Langkah-1-8211-Menginstall-Vsftpd

3. https://www.cyberciti.biz/faq/ubuntu-linux-install-openssh-server/

4. https://support.rackspace.com/how-to/installing-mysql-server-on-ubuntu/

5. https://www.hostinger.com/tutorials/how-to-install-and-setup-mail-server-on-ubuntu/

THANK YOU, TEAM!

"You're breathtaking! You're all breathtaking“

- Keanu Reeves -

S1-SI-06

Jl. Ring road Utara,
Condongcatur, Depok
Sleman, DIY