

# Membangun VOIP Server dengan Briker

## Bab I Pendahuluan

### 1. Pengertian

*Briker Open Source IPPBX is a Free and Open Source Software project to build a Linux Distribution that provides telecommunication related services such as a PBX or an IP PBX, and other telephony features (Anton Raharja, 2008)* Fokus :

- Briker adalah distribusi Linux yang didalamnya terdapat aplikasi server yang memungkinkan pengguna mengimplementasikan layanan VoIP, membangun sentral telepon sendiri
- Penggunaan Briker per server disarankan untuk organisasi, institusi dan perusahaan dengan jumlah extension maksimal 1000 dan perkiraan jumlah percakapan simultan maksimal 240
- Fitur-fitur dalam Briker bisa dikatakan setara dengan PABX yang ada dipasaran. IVR, ring group, call forward, follow me, ACD, trunking dan billing adalah fitur-fitur yang biasanya anda peroleh dengan membeli PABX yang harganya relatif sangat mahal
- Dalam manual ini dijelaskan bagaimana melakukan konfigurasi Briker, lengkap dengan step-by-step dan gambar-gambar penunjang

### 2. Latar Belakang

Dengan berkembangnya jaringan internet, muncullah teknologi telepon berbasis internet, yang lebih dikenal dengan VOIP. Di Indonesia sendiri, teknologi ini menarik perhatian beberapa pihak hingga dikembangkannya distribusi Linux yang ditujukan khusus untuk memberikan pelayanan VOIP Server. Distribusi Linux ini bernama Briker. Pada praktik kali ini, kita akan mempraktikkan penggunaan VOIP dengan Briker

### 3. Tujuan

Membangun VOIP Server dengan Briker

### 4. Hasil yang diharapkan

Client dapat melakukan VOIP dengan Client lain

## Bab II Alat dan Bahan

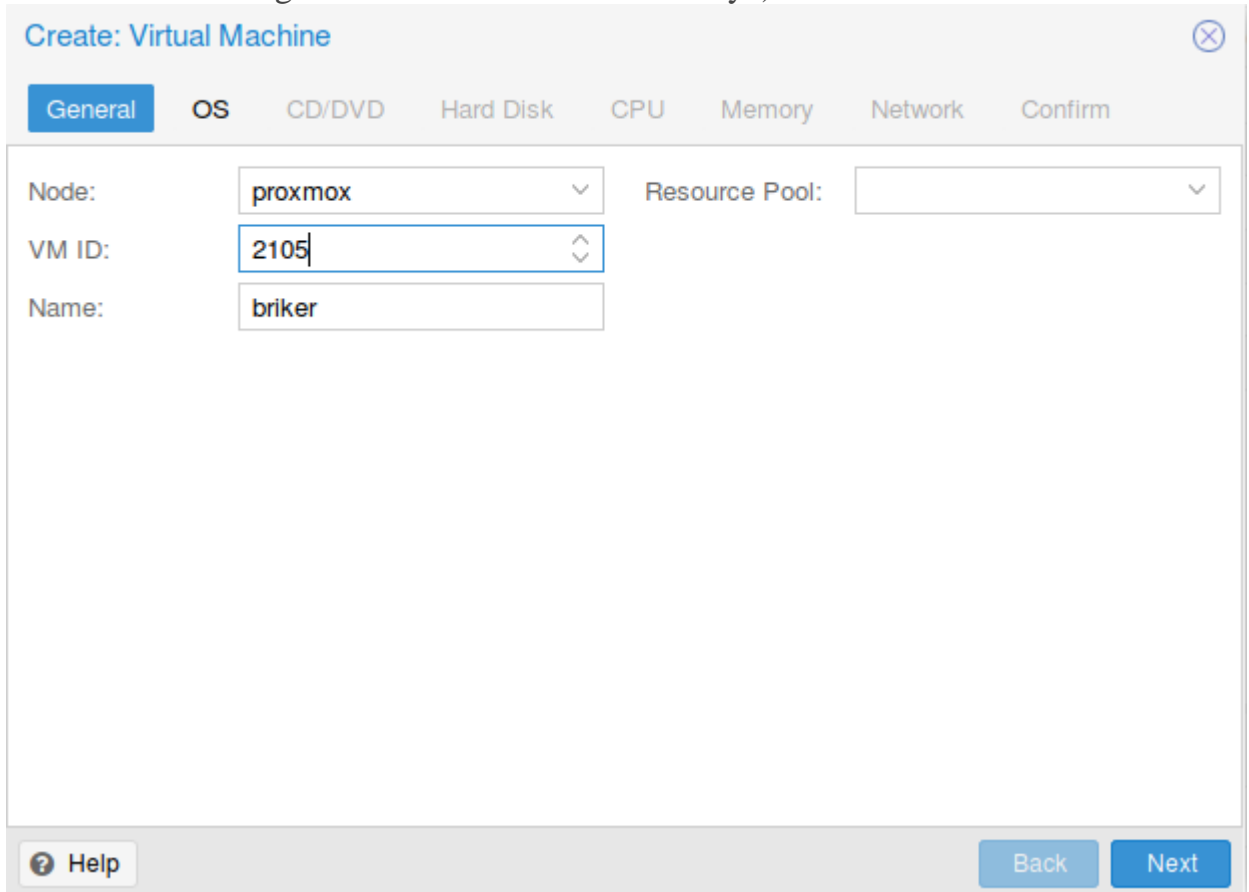
- Alat : Laptop, Server Proxmox
- Bahan : Internet, ISO Briker

## Bab III Jangka Waktu

Jangka Waktu yang diperlukan untuk melakukan instalasi, konfigurasi dan test kira-kira 4 Jam.

## Bab IV Langkah Kerja

1. Buat VM baru di Proxmox. Beri nama dan atur VM ID-nya (disarankan sesuai VLAN ID agar lebih mudah membedakannya). Klik Next

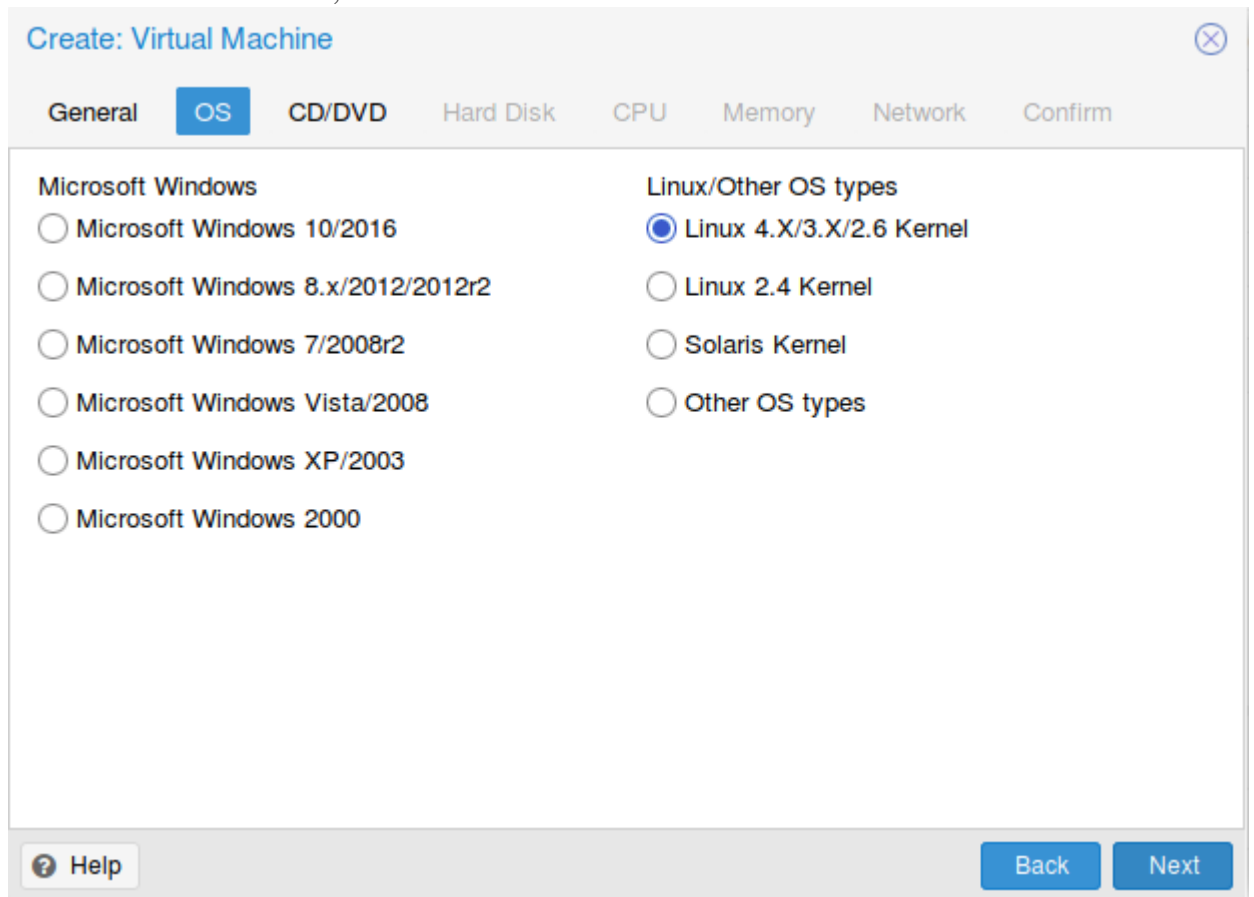


The screenshot shows the 'Create: Virtual Machine' dialog box in Proxmox. The 'General' tab is selected, and the following fields are visible:

Field	Value
Node:	proxmox
VM ID:	2105
Name:	briker
Resource Pool:	

At the bottom of the dialog, there is a 'Help' button on the left and 'Back' and 'Next' buttons on the right.

2. Pilih Linux 4.x Kernel,klik Next



- Pilih ISO yang telah diupload ke Proxmox, klik Next

**Create: Virtual Machine**

General OS **CD/DVD** Hard Disk CPU Memory Network Confirm

Use CD/DVD disc image file (iso)

Storage: local

ISO image: briker-2.0.4.iso

Use physical CD/DVD

Do not use any CD/DVD

Name	For...	Size
briker-2.0.4.iso	iso	620...
debian-8.6.0-i386-DVD-1.iso	iso	3.72...

Back Next

- Atur kapasitas disk yang dibutuhkan. Untuk Briker sendiri, sebenarnya tidak memerlukan kapasitas Harddisk yang terlalu besar, namun disini saya

samakan dengan VM lain, klik Next

Create: Virtual Machine ⓧ

General OS CD/DVD **Hard Disk** CPU Memory Network Confirm

Bus/Device:	SCSI <span>⌵</span>	0 <span>⌵</span>	Cache:	Default (No cache) <span>⌵</span>
Storage:	local-lvm <span>⌵</span>		No backup:	<input type="checkbox"/>
Disk size (GB):	50 <span>⌵</span>		Discard:	<input type="checkbox"/>
Format:	Raw disk image (raw) <span>⌵</span>		IO thread:	<input type="checkbox"/>

? Help Back Next

5. Atur penggunaan prosesor,klik Next

The image shows a screenshot of the 'Create: Virtual Machine' dialog box, specifically the 'CPU' configuration tab. The dialog has a title bar with a close button (X) in the top right corner. Below the title bar is a navigation bar with tabs: 'General', 'OS', 'CD/DVD', 'Hard Disk', 'CPU' (selected), 'Memory', 'Network', and 'Confirm'. The main content area contains the following fields:

- Sockets:** A numeric input field with the value '1' and a dropdown arrow.
- Cores:** A numeric input field with the value '1' and a dropdown arrow.
- Enable NUMA:** A checkbox that is currently unchecked.
- Type:** A dropdown menu with the selected value 'Default (kvm64)' and a downward arrow.
- Total cores:** A text label followed by the value '1'.

At the bottom of the dialog, there is a 'Help' button with a question mark icon on the left, and 'Back' and 'Next' buttons on the right.

6. Atur RAM yang digunakan, rekomendasi 2GB untuk penggunaan skala sedang, klik Next

Create: Virtual Machine ✕

General OS CD/DVD Hard Disk CPU **Memory** Network Confirm

Use fixed size memory

Memory (MB):

Ballooning:

Automatically allocate memory within this range

Maximum memory (MB):

Minimum memory (MB):

Shares:

? Help Back Next

7. Masukkan VLAN ID, klik Next

Create: Virtual Machine ✕

General OS CD/DVD Hard Disk CPU Memory **Network** Confirm

Bridged mode  
VLAN Tag:   
Bridge:   
Firewall:

NAT mode  
 No network device

Model:   
MAC address:   
Rate limit (MB/s):   
Multiqueues:   
Disconnect:

? Help Back Next



8. Klik Finish

Create: Virtual Machine

General OS CD/DVD Hard Disk CPU Memory **Network** Confirm

Settings

Key ↑	Value
cores	1
ide2	local:iso/briker-2.0.4.iso,media=cdrom
memory	2048
name	briker
net0	virtio,bridge=vmbro,tag=2105
nodename	proxmox
numa	0
ostype	l26
scsi0	local-lvm:50
sockets	1

Back Finish

9. Pilih pada VM briker,lalu klik Start

https://192.168.0.1:8006/#v1:0:=qemu%2F2105:4::: kebutuha

PROXMOX Virtual Environment 4.4-1/eb2d6f1e Search You are logged in as 'root@'

Server View Virtual Machine 2105 ('briker') on node 'proxmox' Start Shutdown

Datacenter proxmox 2100 (zainal) 2101 (kiki) 2102 (yosi) **2105 (briker)** 2109 (teddy) local (proxmox) local-lvm (proxmox)

Summary Console Hardware Options Task History Monitor Backup Snapshots Firewall Permissions

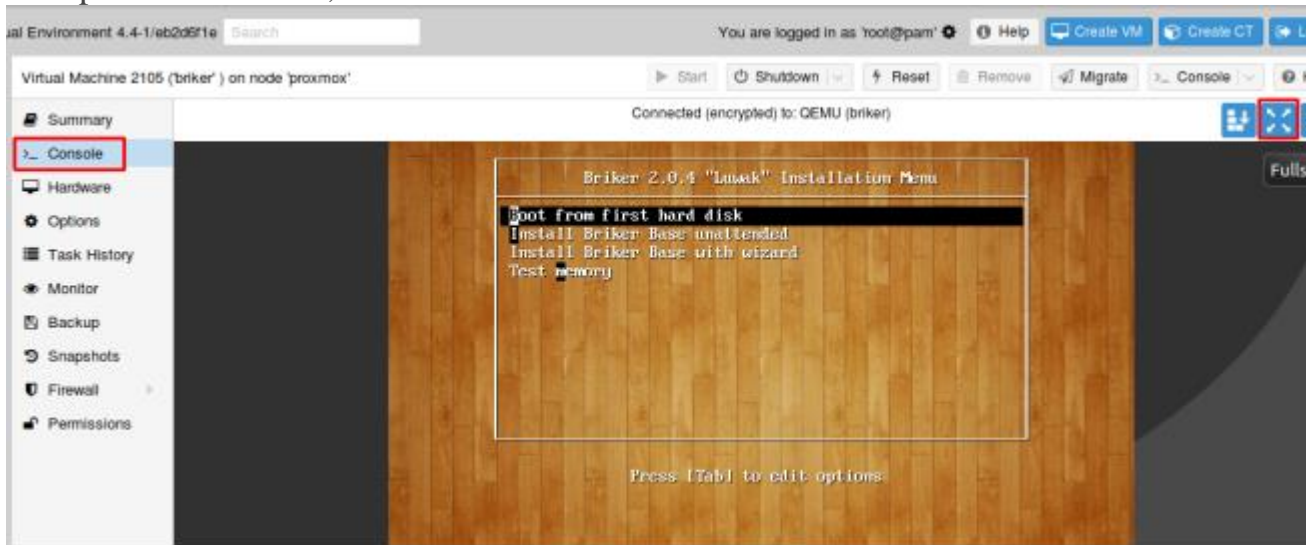
briker

Status	stopped
Managed by HA	No
Node	proxmox
CPU usage	0.00% of 1 CPU(s)
Memory usage	0.00% (0 B of 2.00 GiB)
Bootdisk Size	50.00 GiB

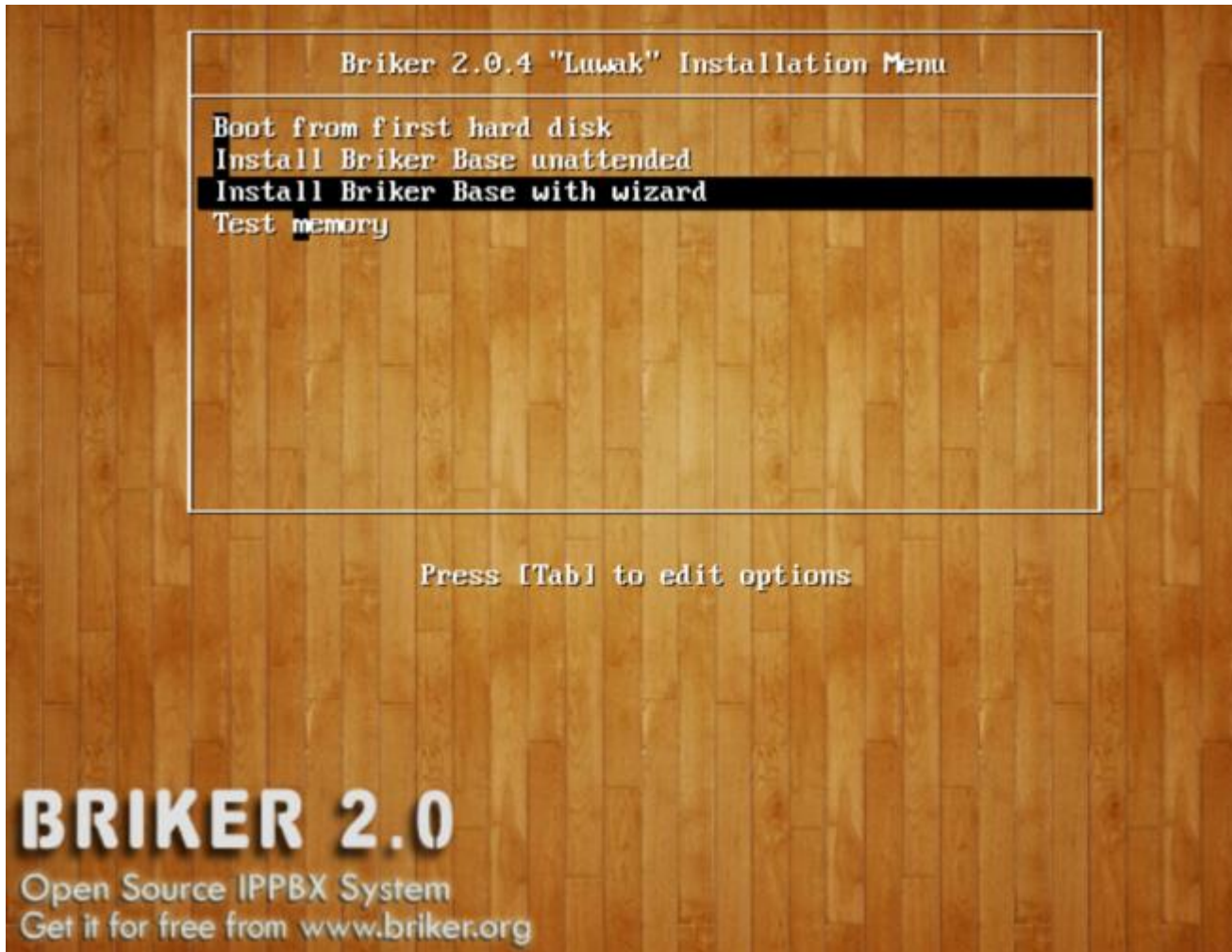
Notes

CPU usage

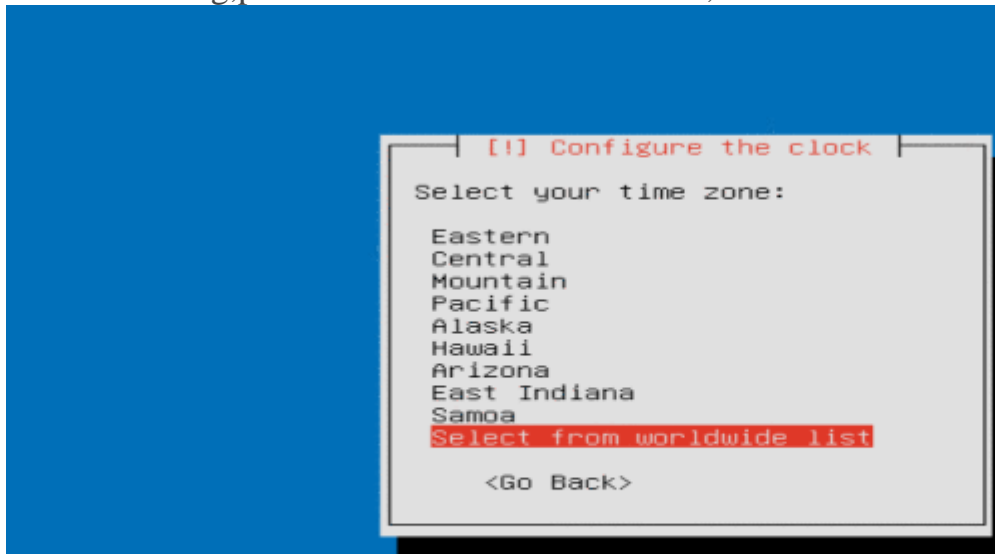
10. Klik pada tab Console, lalu klik Fullscreen



11. Arahkan pilihan dengan tombol arah ke Install Brier with wizard, tekan enter

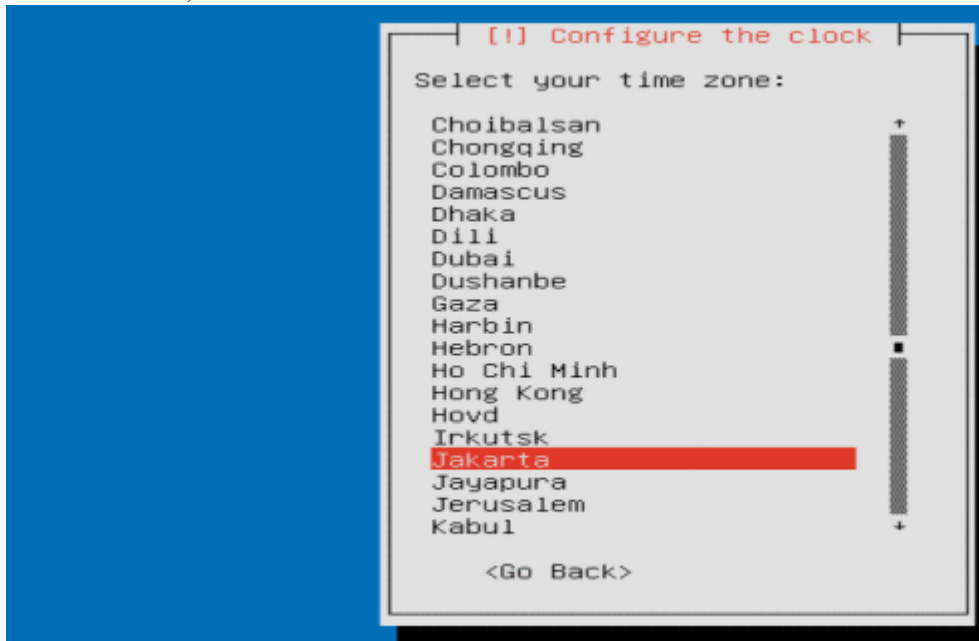


12. Setelah loading, pilih Select from worldwide list, tekan enter



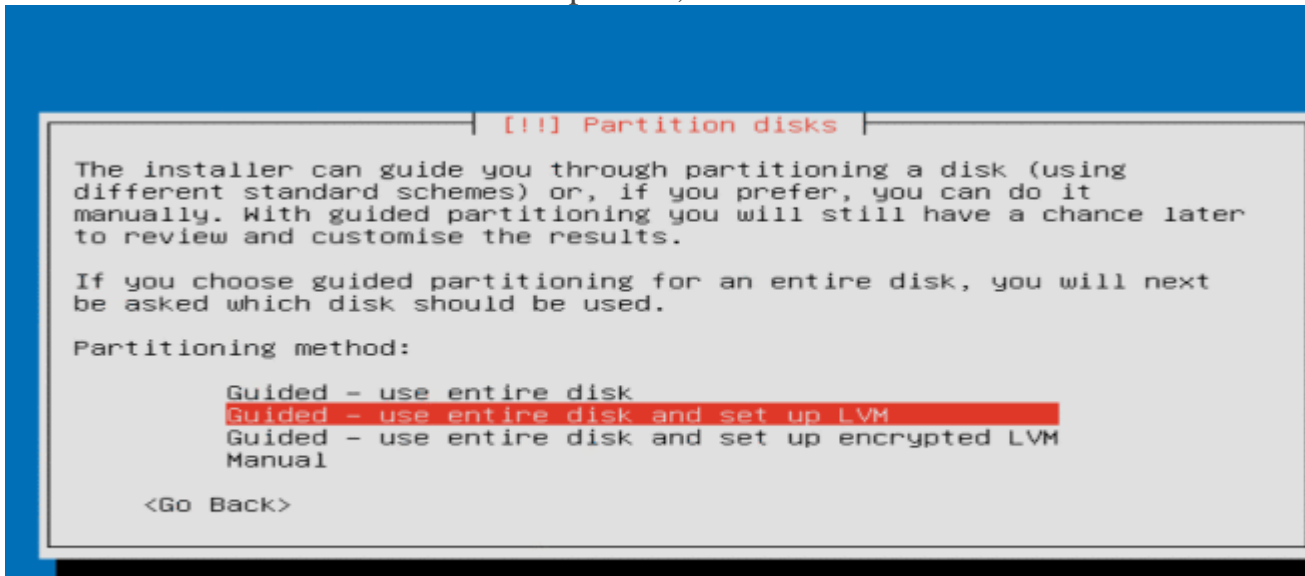
<Tab> moves; <Space> selects; <Enter> activates buttons

13. Pilih Jakarta, tekan enter



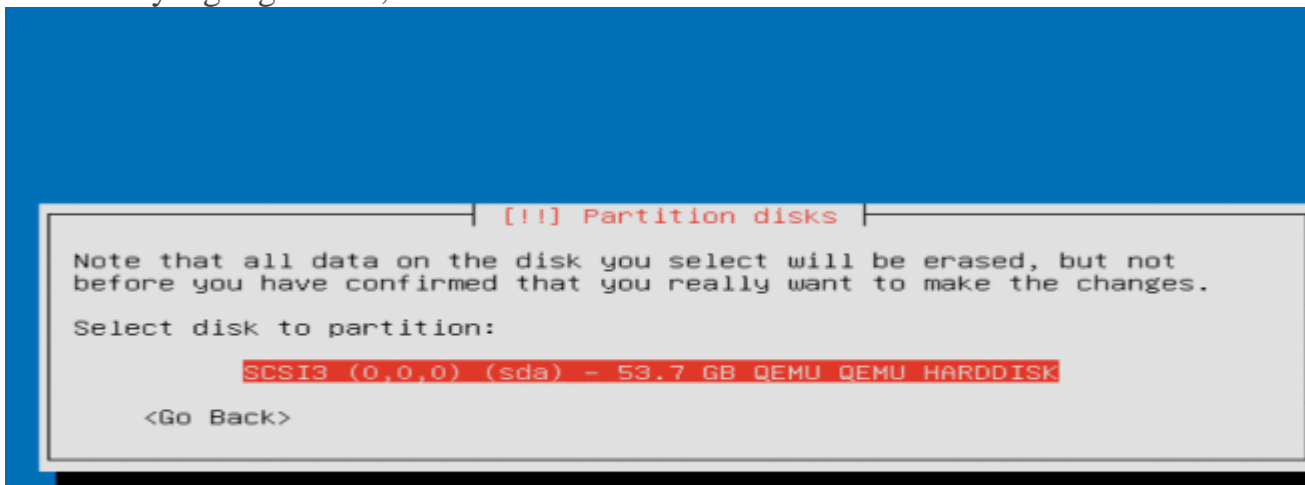
<Tab> moves; <Space> selects; <Enter> activates buttons

14. Pilih Guided – use entire disk and set up LVM, tekan enter



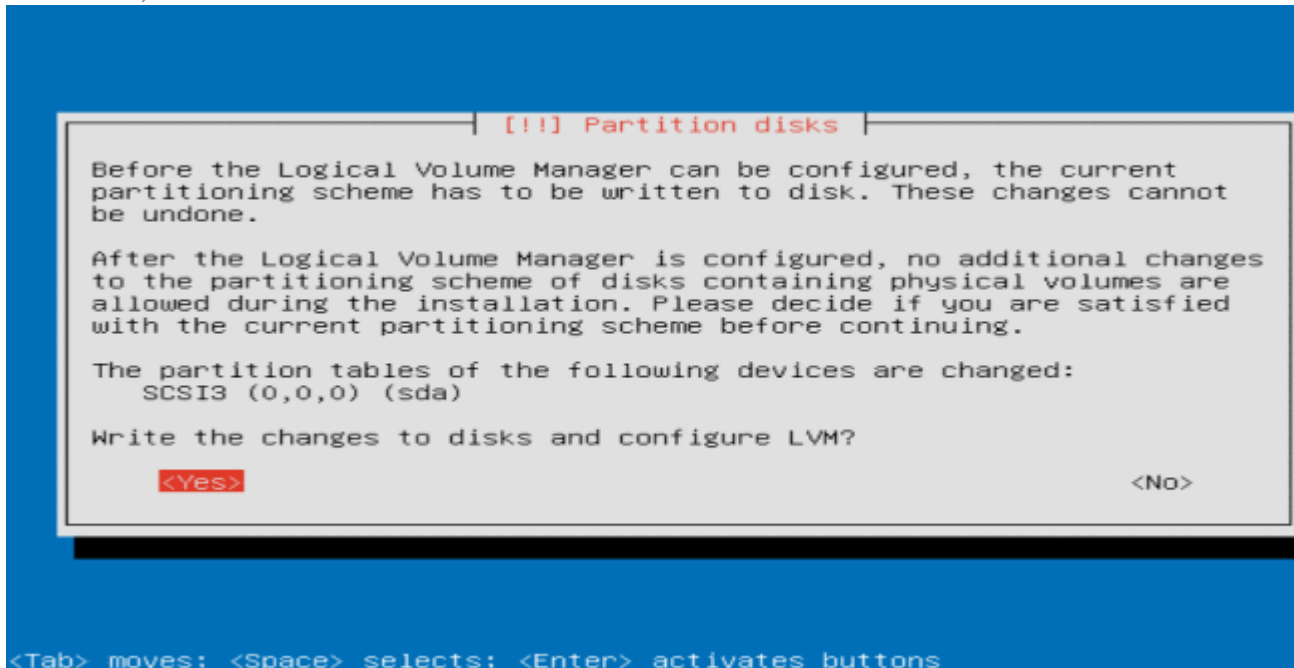
<Tab> moves; <Space> selects; <Enter> activates buttons

15. Pilih disk yang digunakan, tekan enter

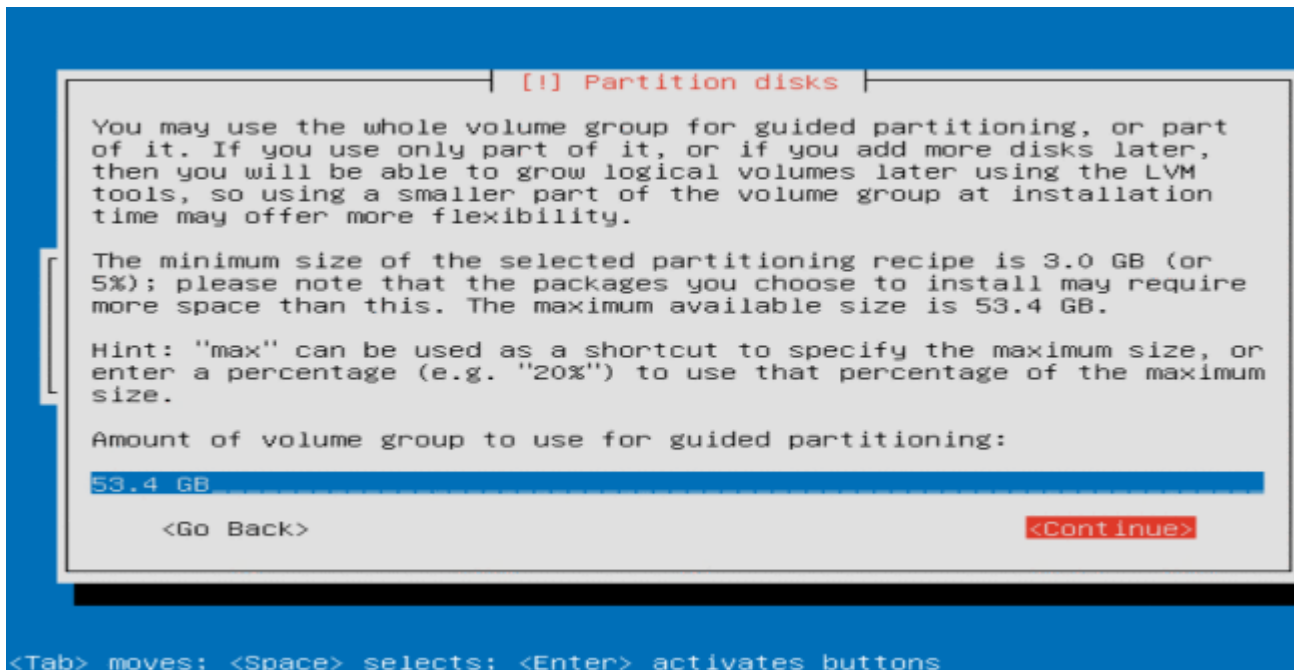


<Tab> moves; <Space> selects; <Enter> activates buttons

16. Pilih Yes, tekan enter



17. Tekan enter





Installing the system...

83%

Preparing linux-firmware (amd64)

Select and install software

4%

Configuring python2.7 (amd64)

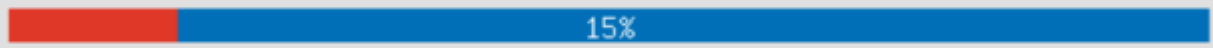
Installing GRUB boot loader

0%

Configuring grub-pc (amd64)



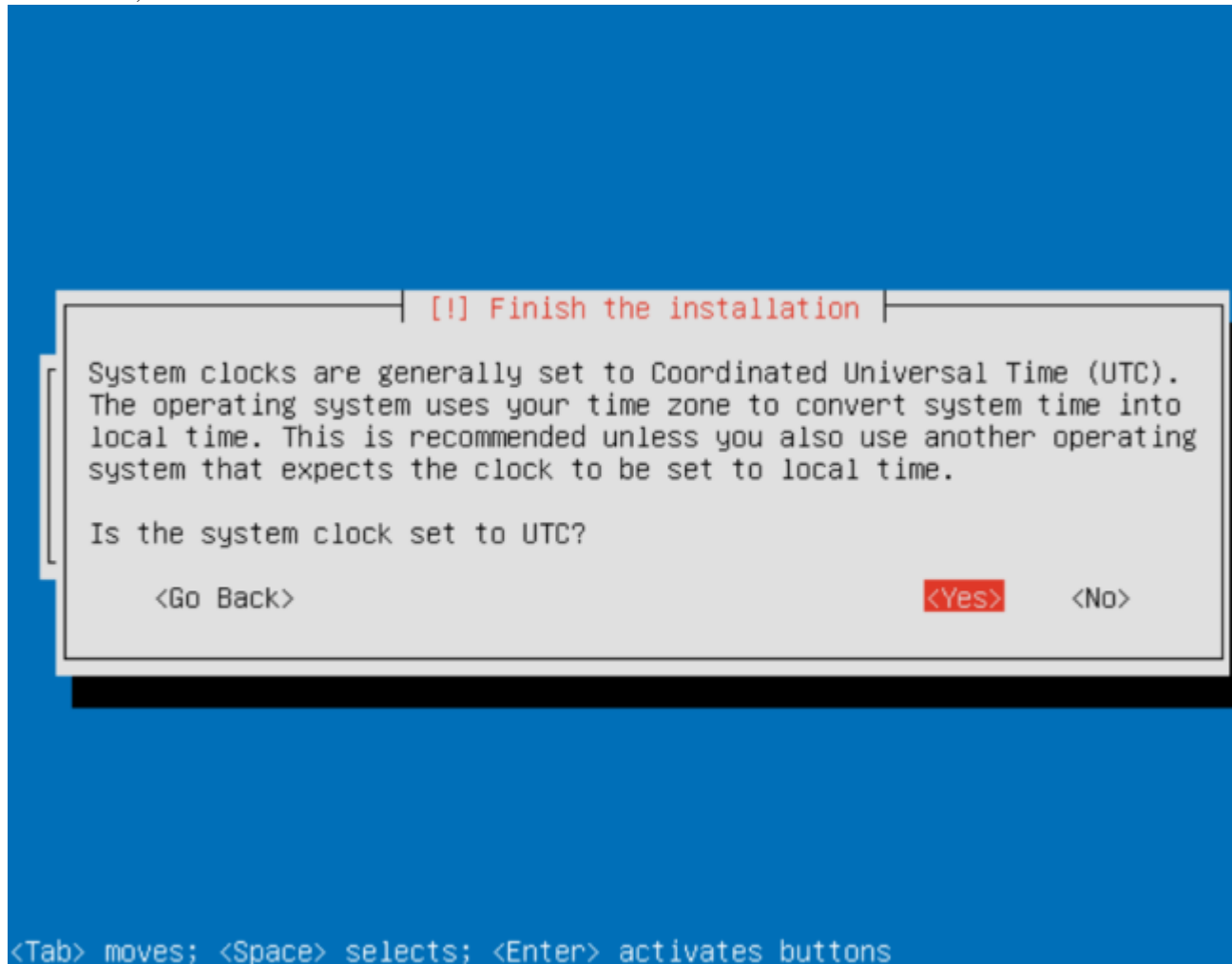
Finishing the installation



15%

Running preseed...

20. Pilih Yes, tekan enter





## 22. Login dengan user root dan password Briker

```
Briker 2.0.4 "Luwak" ippbx tty1
ippbx login: root
Passuord:
```

## 23. Konfigurasi IP dengan perintah "vi /etc/network/interfaces", tekan enter

```
root@ippbx:~# nano /etc/network/interfaces
-bash: nano: command not found
root@ippbx:~# mcedit /etc/network/interfaces
-bash: mcedit: command not found
root@ippbx:~# vi_/etc/network/interfaces
```

24. Tekan tombol Insert, lalu sesuaikan IP, netmask, network, broadcast dan gateway dengan Jaringan VLAN yang disambungkan pada Briker.

```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
auto eth0
iface eth0 inet static
    address 99.99.99.2
    netmask 255.255.255.252_
    network 99.99.99.0
    broadcast 99.99.99.3
    gateway 99.99.99.1
    # dns-* options are implemented by the resolvconf package, if installed
    dns-nameservers 127.0.0.1
    dns-search ippbx.briker.lan
```

-- INSERT --

12,25-32

25. Tekan tombol escape (pada saat menggunakan console proxmox, maka anda perlu menekan esc 2x), lalu ketikkan “:wq”, tekan enter

```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
auto eth0
iface eth0 inet static
    address 99.99.99.2
    netmask 255.255.255.252
    network 99.99.99.0
    broadcast 99.99.99.3
    gateway 99.99.99.1
    # dns-* options are implemented by the resolvconf package, if installed
    dns-nameservers 127.0.0.1
    dns-search ippbx.briker.lan
```

:wq

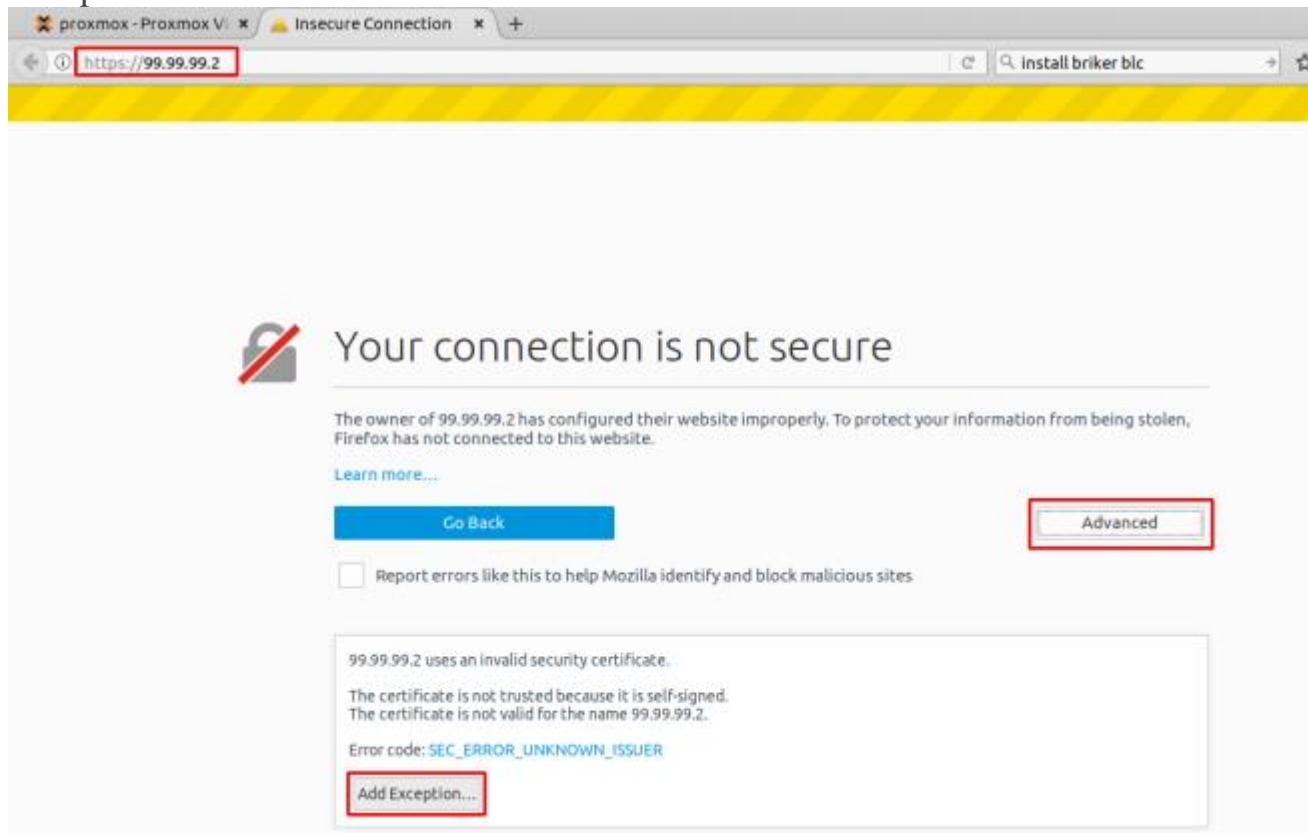
26. Restart jaringan dengan perintah “ifdown eth0 && ifup eth0”.Cek IP dengan perintah ifconfig,tekan enter

```
"/etc/network/interfaces" 18L, 506C written
root@ippbx:~# ifdown eth0 && ifup eth0
RTNETLINK answers: No such process
root@ippbx:~# ifconfig
eth0      Link encap:Ethernet  HWaddr a6:8c:09:9b:a4:a1
          inet addr:99.99.99.2  Bcast:99.99.99.3  Mask:255.255.255.252
          inet6 addr: fe80::a48c:9ff:fe9b:a4a1/64  Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:81 errors:0 dropped:41 overruns:0 frame:0
          TX packets:2425 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:11481 (11.4 KB)  TX bytes:102446 (102.4 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128  Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:4149 errors:0 dropped:0 overruns:0 frame:0
          TX packets:4149 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1
          RX bytes:360707 (360.7 KB)  TX bytes:360707 (360.7 KB)

root@ippbx:~#
```

27. Masukkan IP Briker pada Web Browser Client.Klik Advaced,lalu Add Exception



## 28. Masukkan username Administrator dan password Briker

Briker 2.0.4 "Luwak"

Home | IPPBX Administration | Billing | CDR | ACD Statistics | User Portal | Fax

Operator Panel | Server M  
Briker Core © 2006 PT. Infotech Media N

### IPPBX Login

Username

Password

## 29. Anda akan memasuki halaman rumah Briker

Briker 2.0.4 "Luwak"

Home | IPPBX Administration | Billing | CDR | ACD Statistics | User Portal | Fax

Operator Panel | Server M  
Briker Core © 2006 PT. Infotech Media N

**Logged in: Administrator**

**Status: Administrator**

- Home
- My Account
- Preferences
- Administration
- Logout

### Welcome to Briker

[About Briker](#) | [Changelog](#) | [F.A.Q](#) | [License](#)

Briker 2.0.4 "Luwak"

Release date: 160714

Firmware: 2041607141313

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Briker is an IPPBX software, a softswitch.

Briker will automagically convert your computer into a powerfull PBX machine with IP communication support built-in.

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For supports and informations feel free to visit <http://www.briker.org>

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Development HQ:

PT. Infotech Media Nusantara  
<http://www.itmn.co.id>



30. Untuk mengatur VOIP, klik pada IPPBX Administration, lalu klik Extensions

Briker 2.0.4 "Luwak"

Home | **IPPBX Administration** | Billing | CDR | ACD Statistics | User Portal | Fax

Operator Panel | Server M  
IPPBX Administration | Powered by Free

Setup Tools

Admin

**IPPBX Status**

Basic

Bulk Extensions

Custom Contexts

Device Auto Provisioning

**Extensions**

Feature Codes

General Settings

Outbound Routes

Trunks

Inbound Call Control

Inbound Routes

Zip Channel DIDs

Announcements

Blacklist

CallerID Lookup Sources

Day/Night Control

Follow Me

IVR

Queues / ACD

Ring Groups

Time Conditions

Internal Options & Configuration

Callback

### IPPBX Status

#### IPPBX Notices

No new notifications  
[show all](#)

#### IPPBX Statistics

Total active calls	0
Internal calls	0
External calls	0
Total active channels	0
IPPBX Connections	
IP Trunks Online	0
IP Trunk Registrations	0

#### Uptime

**System Uptime:** 46 minutes  
**IPPBX Server Uptime:** 46 minutes  
**Last Reload:** 46 minutes

#### System Statistics

Processor	
Load Average	0.00
CPU	1%
Memory	
Free Memory	31%
Swap	0%
Disks	
/dev	0%
/run	0%
/sys/fs/group	0%
/run/lock	0%
/run/shm	0%
/run/user	0%
Free	17%
Networks	
eth0 receive	1.93 KB/s
eth0 transmit	10.84 KB/s

#### Server Status

IPPBX Server	OK
Database Server	OK

31. Pada praktik ini, kita menggunakan SIP yang disupport oleh Zoiper. Klik Submit

Briker 2.0.4 "Luwak"

Home | IPPBX Administration | Billing | CDR | ACD Statistics | User Portal | Fax

Operator Panel | Server M  
IPPBX Administration | Powered by Free

Setup Tools

Admin

IPPBX Status

Basic

Bulk Extensions

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**Extensions**

Feature Codes

General Settings

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Blacklist

CallerID Lookup Sources

Day/Night Control

Follow Me

IVR

Queues / ACD

Ring Groups

Time Conditions

Internal Options & Configuration

Callback

### Add an Extension

Please select your Device below then click Submit

Device

Device:

32. Pada User Extension, masukkan nomer telepon yang digunakan untuk VOIP. Beri nama tampilan untuk user.

### Add SIP Extension

#### Add Extension

User Extension	62001
Display Name	Teddy Harfa
CID Num Alias	
SIP Alias	

#### Extension Options

Direct DID	
DID Alert Info	
Music on Hold	acc_1 ▾
Outbound CID	
Ring Time	Default ▾
Call Waiting	Enable ▾
Emergency CID	

33. Scroll ke bawah hingga accountcode, lalu masukkan kembali nomer telepon. Pada secret, masukkan password untuk user VOIP

#### Device Options

This device uses sip technology.

calllimit	1
calltimer	0
accountcode	62001
secret	123456
dtmfmode	rfc2833
deny	0.0.0.0/0.0.0.0
permit	0.0.0.0/0.0.0.0
context	from-internal
disallow	all
allow	alaw&ulaw&h263p

34. Scroll ke bawah, klik Submit

Voicemail & Directory

Status	Disabled ▾
Voicemail Password	<input type="text"/>
Email Address	<input type="text"/>
Pager Email Address	<input type="text"/>
Email Attachment	<input type="radio"/> yes <input checked="" type="radio"/> no
Play CID	<input type="radio"/> yes <input checked="" type="radio"/> no
Play Envelope	<input type="radio"/> yes <input checked="" type="radio"/> no
Delete Vmail	<input type="radio"/> yes <input checked="" type="radio"/> no
VM Options	<input type="text"/>
VM Context	default
VmX Locater™	Disabled ▾

**Submit**

35. Tambahkan user lain dengan mengulangi 3 langkah diatas. Sesuaikan dengan kebutuhan

Apply Configuration Changes

### Add an Extension

Please select your Device below then click Submit

Device

Device

Add Extension  
Teddy Harfa <6200

36. Setelah cukup menambahkan user, klik Apply Configuration Changes

The screenshot shows the Bria 2.0.4 "Luwak" IPPBX Administration interface. The top navigation bar includes links for Home, IPPBX Administration, Billing, CDR, ACD Statistics, User Portal, and Fax. The left sidebar contains a menu with categories like Setup, Tools, IPPBX Status, Users, Bulk Extensions, Custom Contexts, Device Auto Provisioning, Extensions (highlighted), Feature Codes, General Settings, Outbound Routes, Trunks, Virtual Call Control, Inbound Routes, Zap Channel DIDs, Announcements, Blacklist, CallerID Lookup Sources, Day/Night Control, Follow Me, IVR, Queues / ACD, Ring Groups, Time Conditions, System Options & Configuration, and Callback. The main content area is titled "Add an Extension" and contains the instruction "Please select your Device below then click Submit". Below this is a "Device" label and a dropdown menu currently set to "Generic SIP Device". A "Submit" button is located below the dropdown. On the right side, there is a small "Add Extension" box listing existing extensions: Teddy Haris <62001>, Zenal Panani <62002>, Yosi Navia <62003>, and Rizky Nurwinda <62004>.

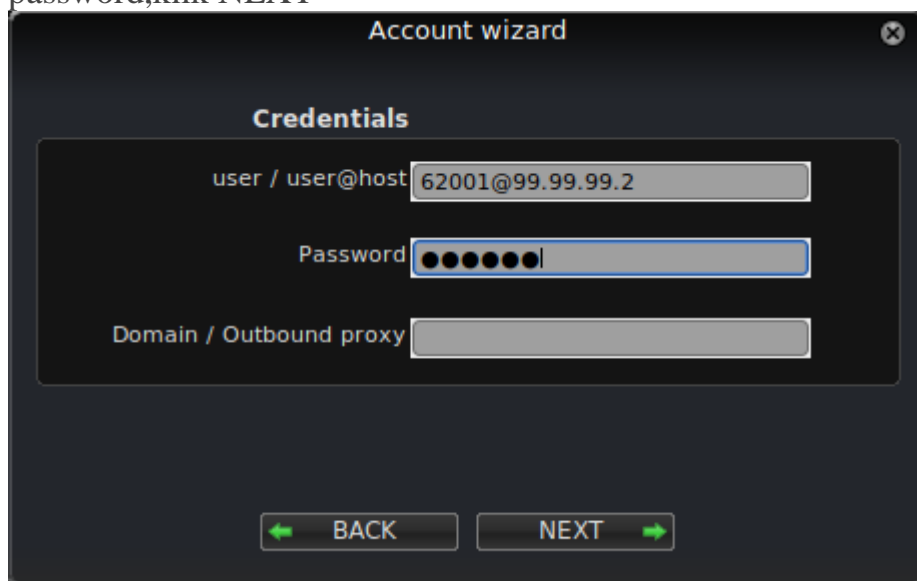
37. Klik Continue with reload

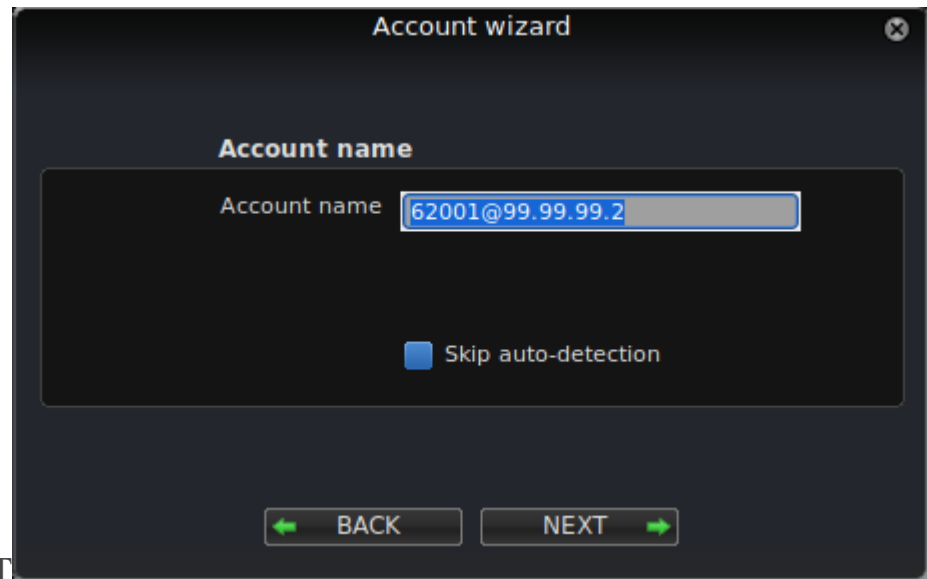
The screenshot shows a dialog box titled "Apply Configuration Changes" with an orange background. The text inside reads: "Reloading will apply all configuration changes made in IPPBX to your PBX engine and make them active." Below this text are two options: "Continue with reload" (marked with a green checkmark icon) and "Cancel reload and go back to editing" (marked with a red X icon). The "Continue with reload" option is highlighted with a dashed white border.

38. Berpindah ke Zoiper, Klik Setting, lalu Create a new Account. Pilih tipe akun SIP, klik NEXT



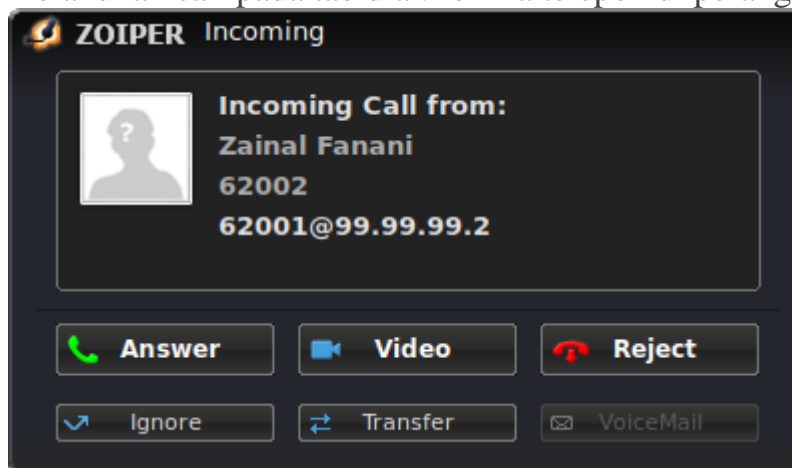
39. Masukkan "nomer telepon@IP Briker" pada user@host, lalu masukkan password, klik NEXT



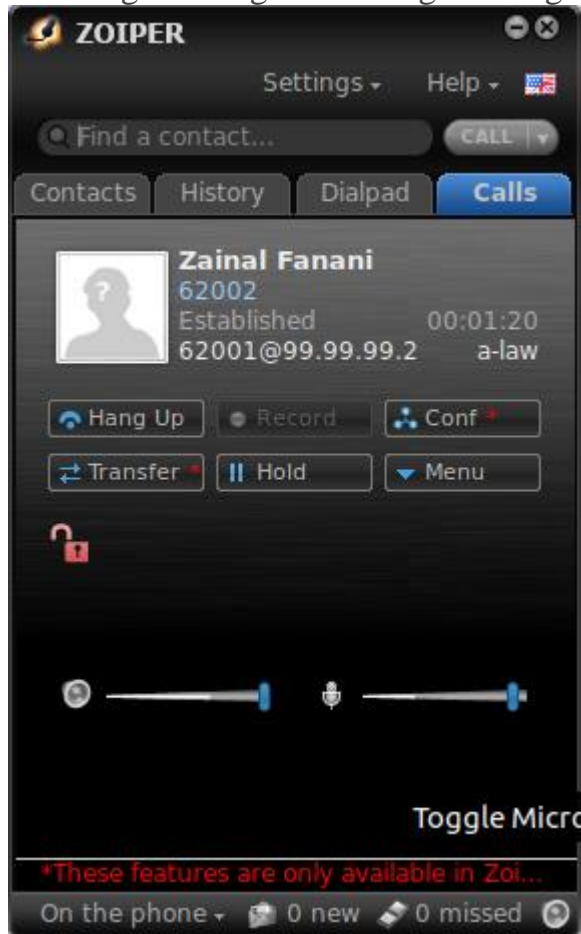


40. Klik NEXT

41. Login pada perangkat lain dengan seperti langkah sebelumnya. Tes dengan melakukan call pada tab dial. Terima telepon di perangkat penerima



42. Tes dengan saling berbincang-bincang.



## Bab V Hasil yang Didapatkan

Client dapat saling berhubungan melalui VOIP.

## Bab VI Permasalahan yang dihadapi

Untuk mengedit file `/etc/network/interfaces`, kita tidak dapat menggunakan nano (text editor di linux yang biasa saya pakai) ataupun mcedit (text editor yang digunakan pada dokumentasi lawas). Setelah saya membaca dokumentasi official Briker, ternyata text editor yang digunakan adalah vim.

Selain itu, pada saat proses VOIP (telepon), koneksi akan cukup mempengaruhi kualitas suara yang dihasilkan.

## Bab VII Kesimpulan

Layaknya pada radio streaming, koneksi akan mempengaruhi output yang dihasilkan pada saat berkomunikasi menggunakan VOIP.

## Bab VIII Referensi

- [Briker Official Documentation \(Indonesia\)](#)