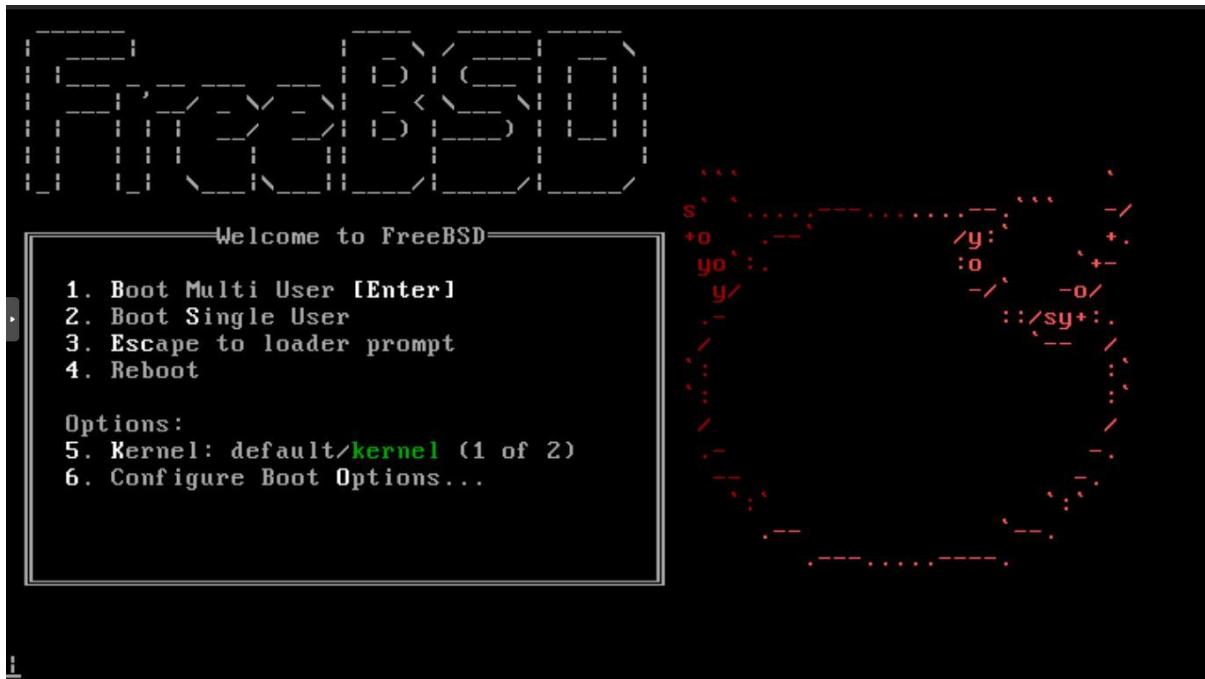


FreeBSD 11.2 Documentations

Installation, Webserver (FAMP), SSH, IP Address and
Host Configuration, DNS Server

Muhammad Ridwan Na'im

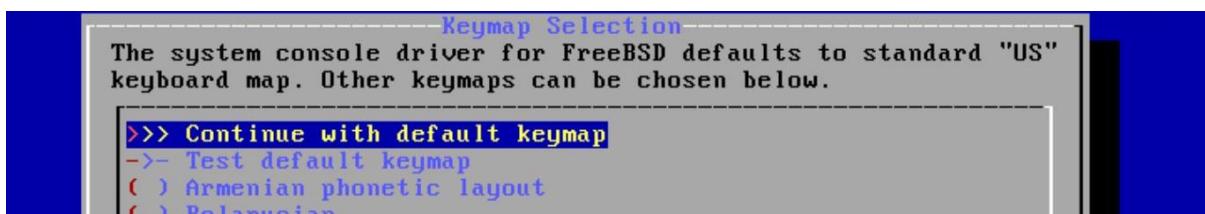
FREEBSD 11.2 INSTALLATION



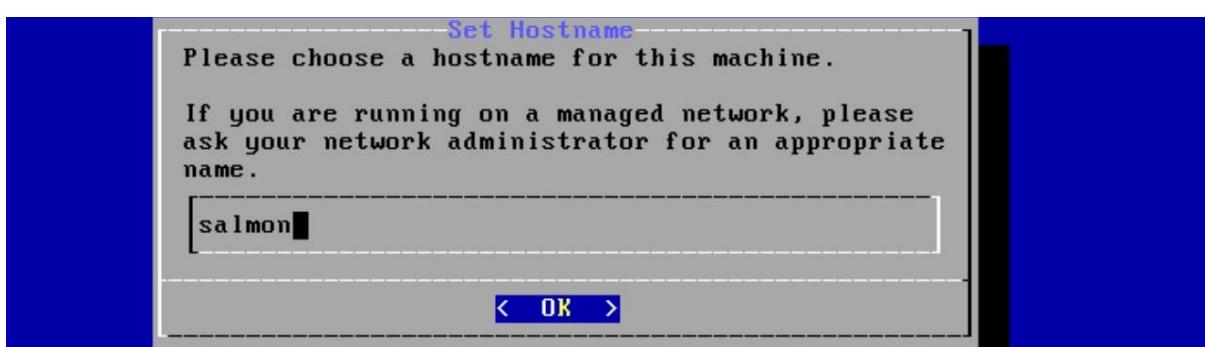
Choose 1 to Boot From FreeBSD installation source [Enter]



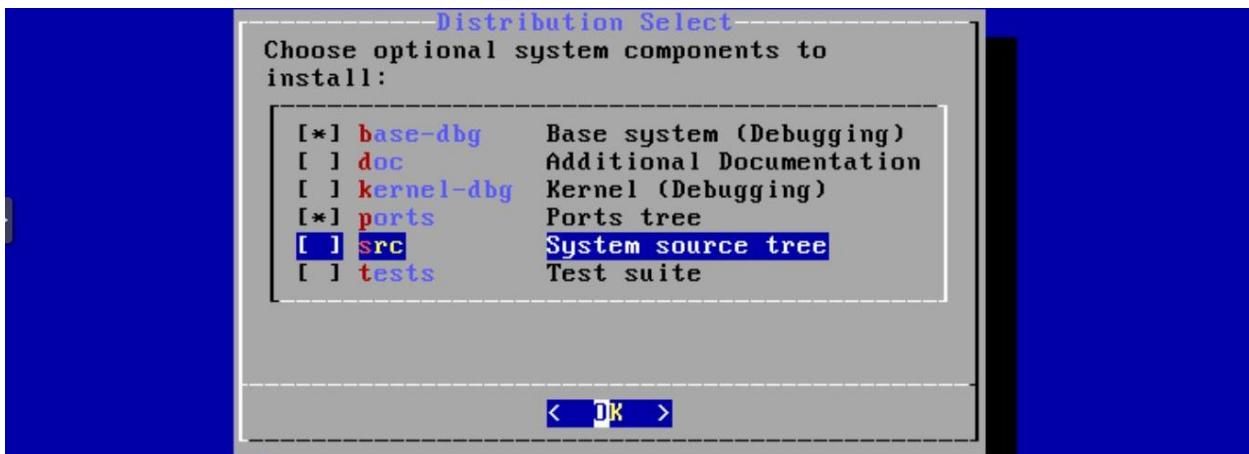
Choose Install [Enter]



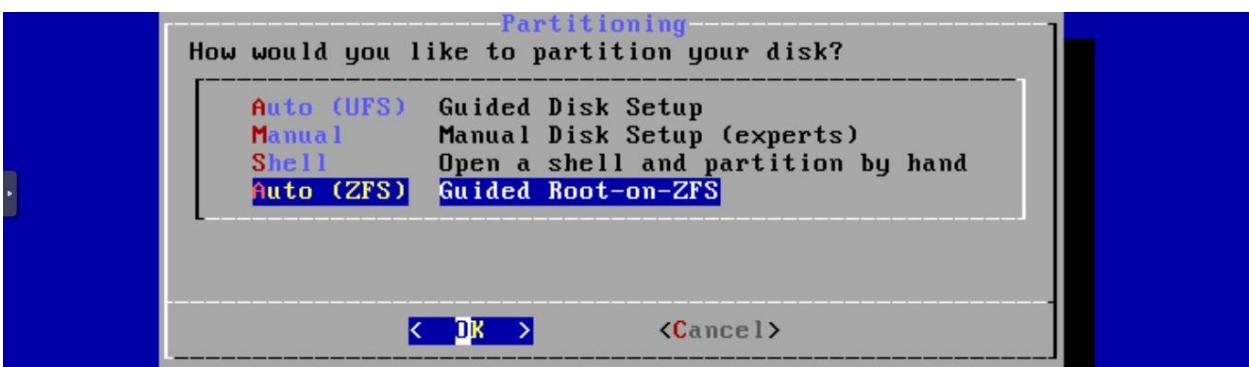
Choose your Keyboard Layout (Press Enter for Default)



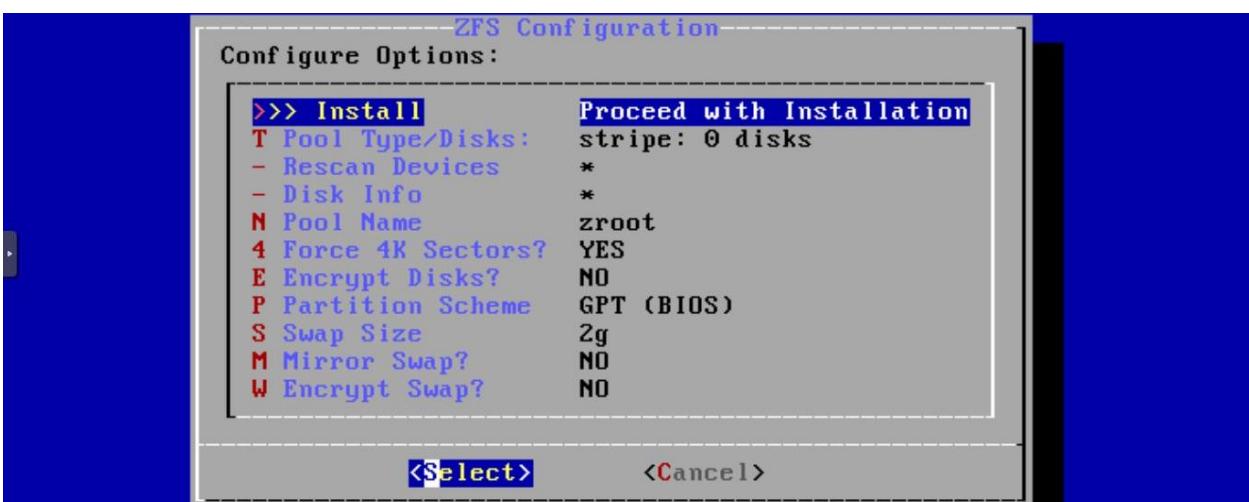
Set Your Hostname



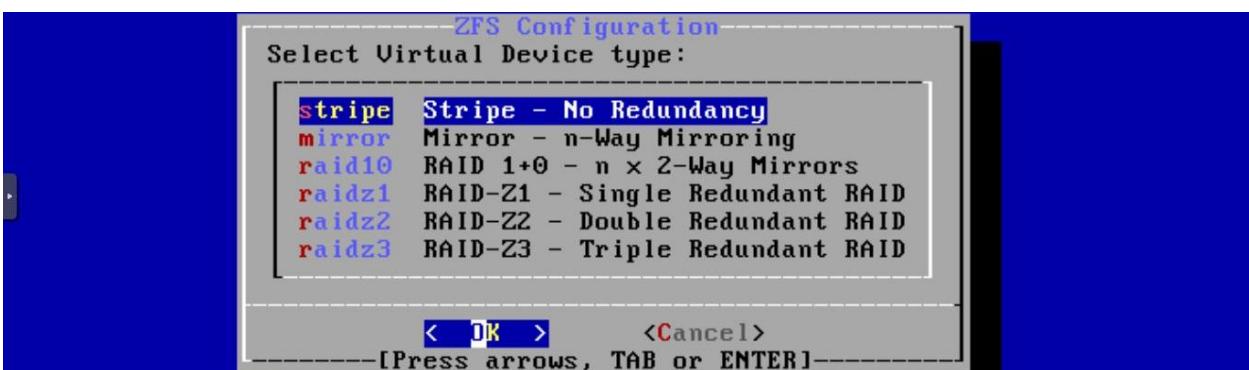
Select System Components to Install. Mark the ports, base-dbg, and doc (optional) with Space.
Press Enter to Accept



Partition Mode. For Beginners, select Auto (UFS) or Auto (ZFS). Press Enter.



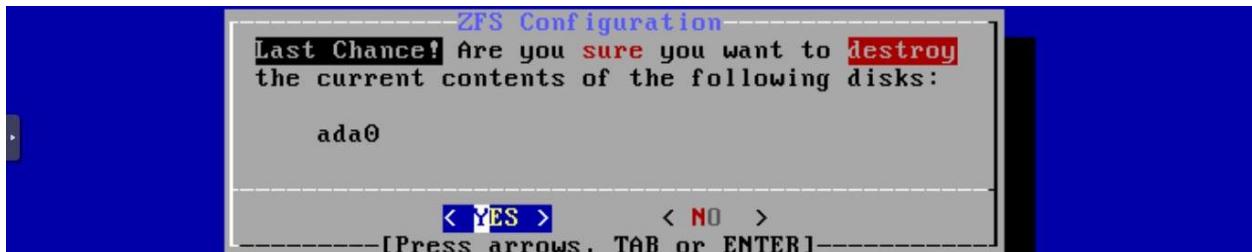
Installation Confirmation. Press Enter to Install FreeBSD on the selected disk.



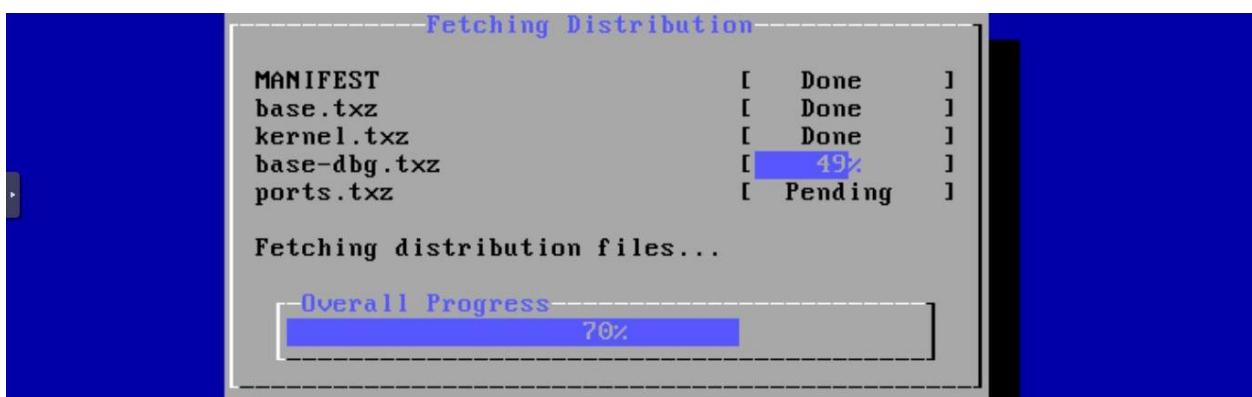
ZFS Configuration. Select stripe [Enter]



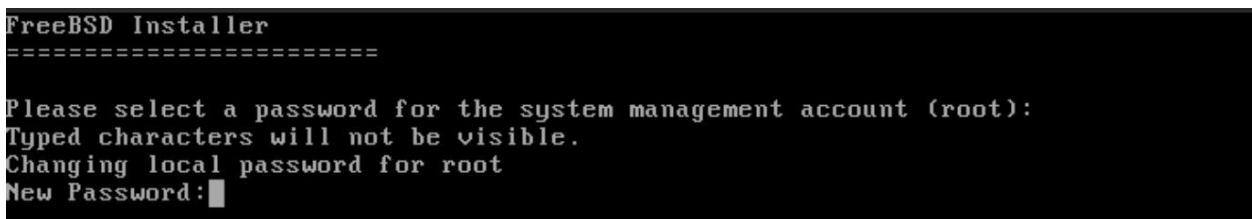
Press Space to Select Target Installation. Press Enter.



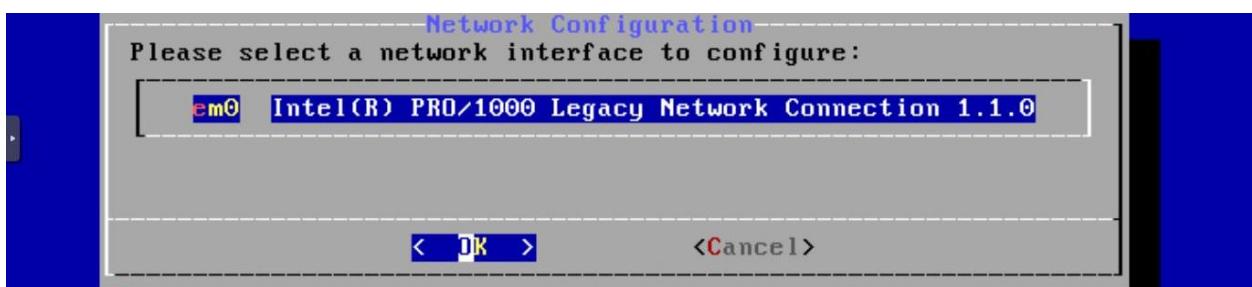
Disk Formatting and Installation Confirmation. Select yes [Enter]



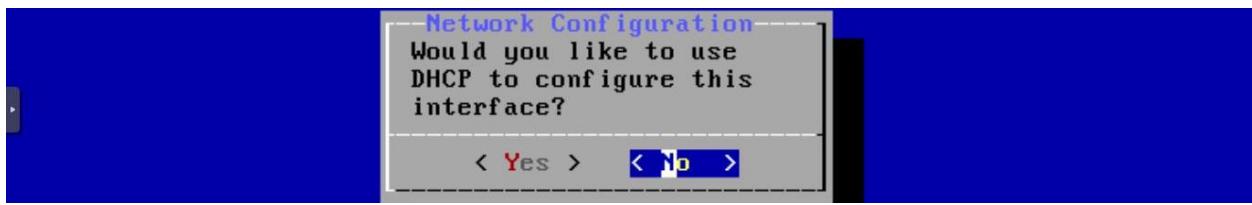
Installation Progress. Please Wait for Several Minutes



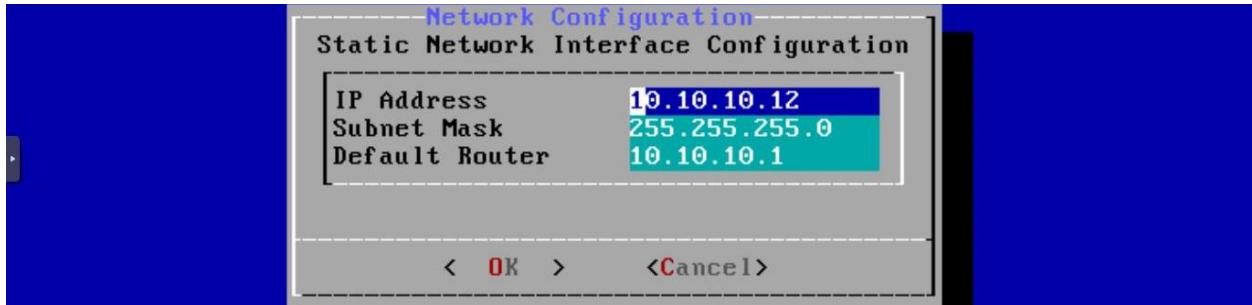
Create Password for root User.



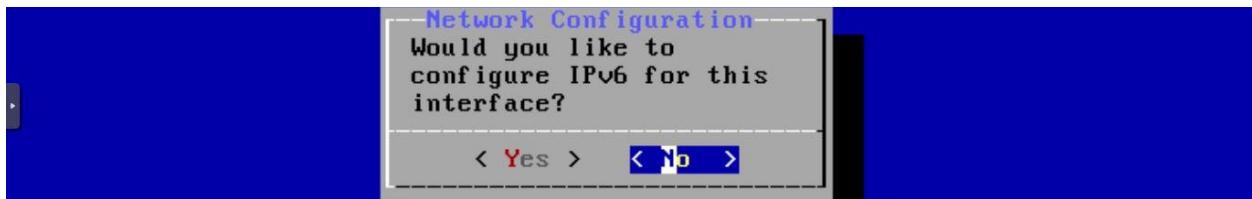
Select Network Interfaces [Enter]



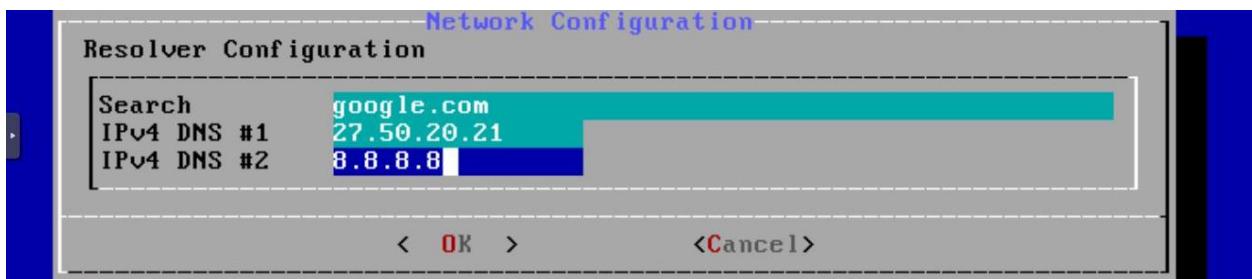
IP Address Configuration. Choose no if you want to configure static address. Choose yes to request IP from DHCP Server. In this case, I choose no to configure static address.



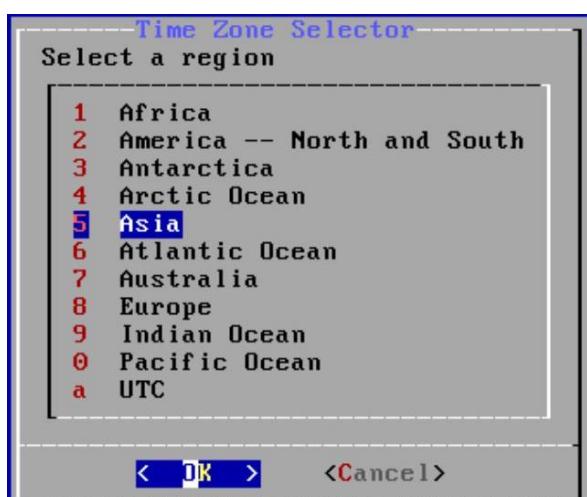
Configure your IP address



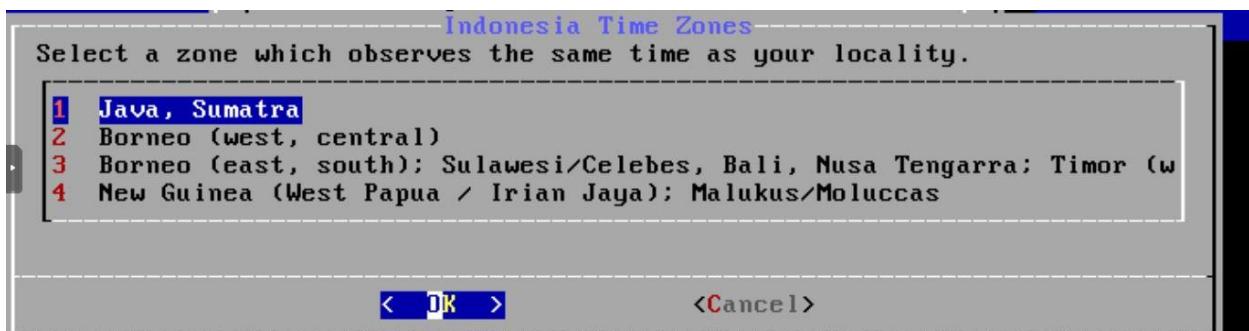
If you want to configure Ipv6 Address, choose yes. If you don't need it, choose no.



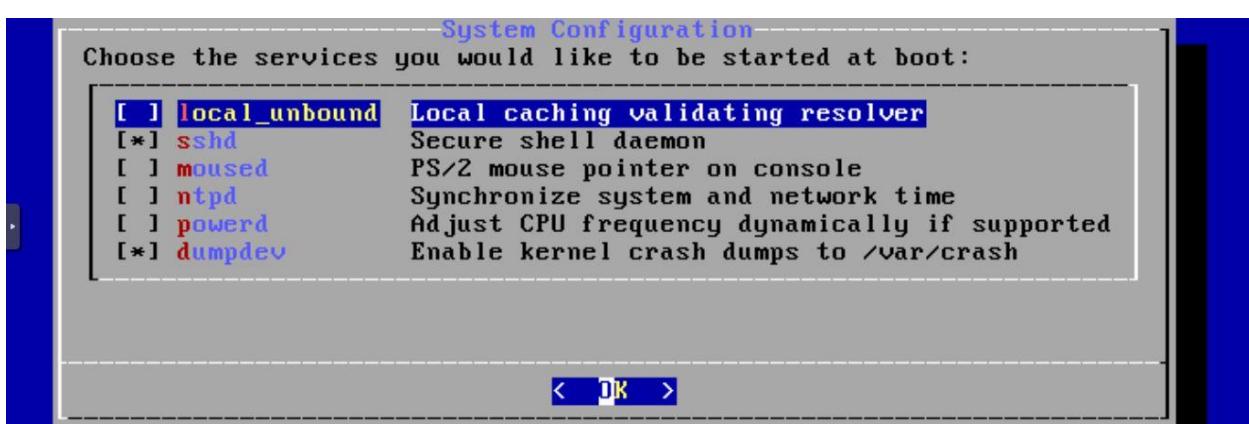
Configure Your DNS Server to Connect with Internet.



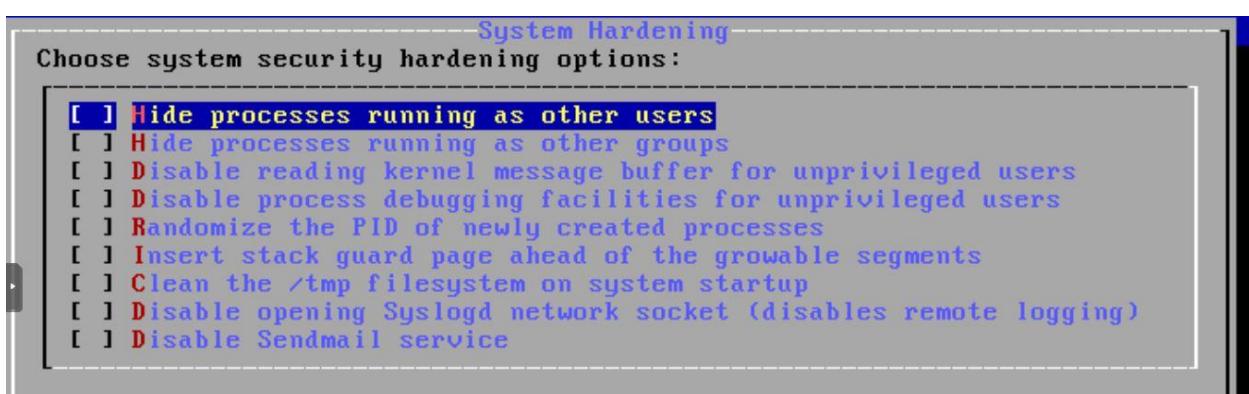
Set your Timezone.



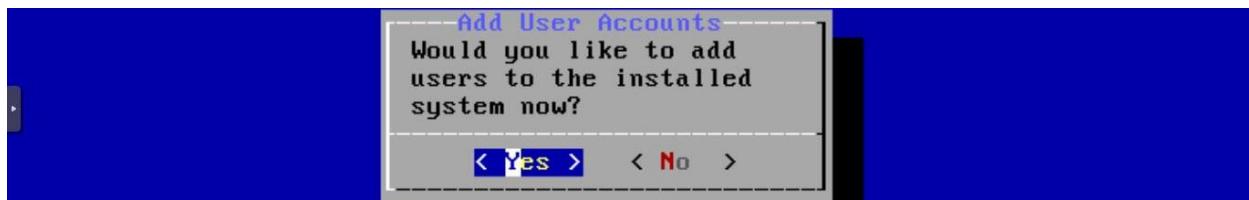
Set Your Time and Date.



Choose startup services. Mark chosen services with space. Press Enter to accept.



System Hardening Options for System Security (optional). Press Enter to skip this Step.

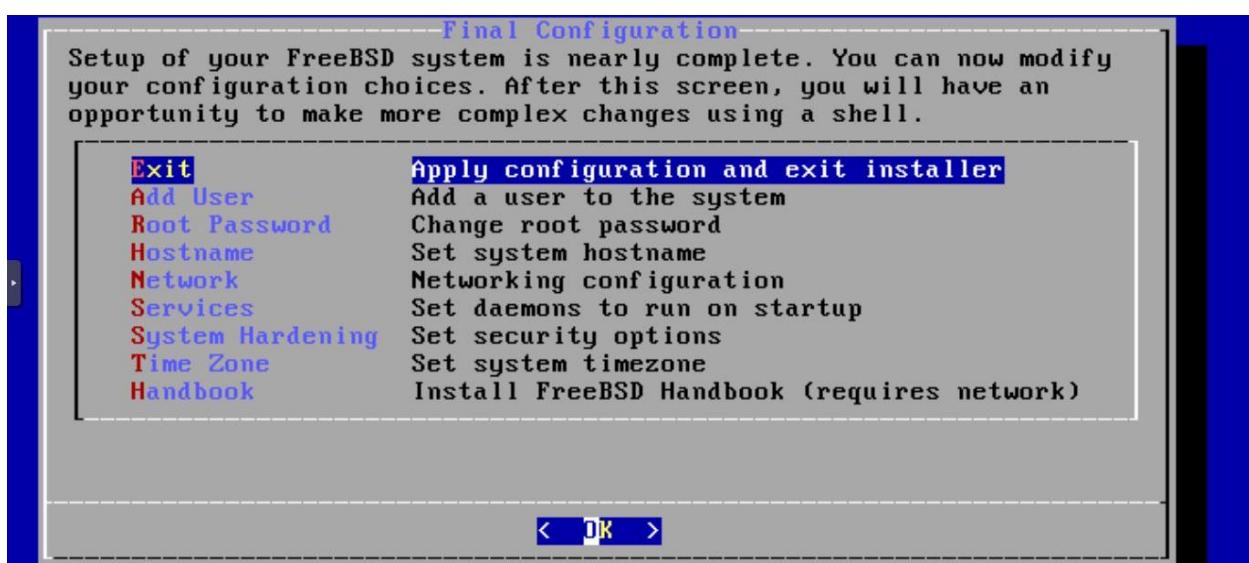


Choose yes to add new user. Choose no to skip this step.

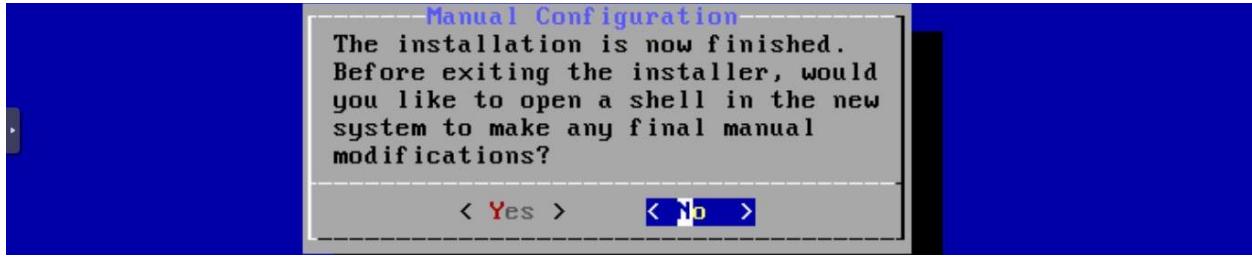
```
Username: infokomsalmon
Full name: salmon
Uid [1001]:
Login group [infokomsalmon]: wheel
Login group is wheel. Invite infokomsalmon into other groups? []: wheel
Login class [default]:
Shell (sh csh tcsh nologin) [sh]:
Home directory [/home/infokomsalmon]:
Home directory permissions (Leave empty for default):
Use password-based authentication? [yes]: yes
Use an empty password? (yes/no) [no]: no
Use a random password? (yes/no) [no]: no
Enter password:
Enter password again:
Passwords did not match!
Use an empty password? (yes/no) [no]:
Use a random password? (yes/no) [no]:
Enter password:
Enter password again:
Lock out the account after creation? [no]: no

Username      : infokomsalmon
Password      : *****
Full Name    : salmon
Uid          : 1001
Class         :
Groups        : wheel wheel
Home          : /home/infokomsalmon
Home Mode    :
Shell          : /bin/sh
Locked        : no
OK? (yes/no): yes
```

Adding New User (Example)



Final Configuration. Choose exit to finishing Installation or Select another steps where do you want to modify configuration.



If you want to make any manual modification, choose yes. If you want to finishing FreeBSD Installation, choose no and Server will be reboot.

```
Starting syslogd.
No core dumps found.
Clearing /tmp (X related).
Updating motd:.
Mounting late filesystems:.
Configuring vt: blanktime.
Generating RSA host key.
2048 SHA256:CA87te8m++wjW6KX6LLQneWcDR9u2Ns8hnUDr17ZcA root@salmon (RSA)
Generating ECDSA host key.
256 SHA256:JEHztEbW2+1HHCg0cQ258NUSkRcysMT4Z9p+s//oP1k root@salmon (ECDSA)
Generating ED25519 host key.
56 SHA256:WG/ptZ34k2fdzDmAkAHumKNt19XGyG/yYFrUZepJ4yU root@salmon (ED25519)
Performing sanity check on sshd configuration.
Starting sshd.
Starting sendmail_submit.
Starting sendmail_msp_queue.
Starting cron.
Starting background file system checks in 60 seconds.

Wed Oct  3 03:21:52 WIB 2018

FreeBSD/i386 (salmon) (ttyv0)

login: infokomsalmon
Password: [REDACTED]
```

Installation Finished. You can login with root user (root) or other user which you add.

WEBSERVER CONFIGURATION

Login as root

```
#pkg install apache24
```

```
Message from apache24-2.4.35:  
To run apache www server from startup, add apache24_enable="yes"  
in your /etc/rc.conf. Extra options can be found in startup script.  
Your hostname must be resolvable using at least 1 mechanism in  
/etc/nsswitch.conf typically DNS or /etc/hosts or apache might  
have issues starting depending on the modules you are using.  
!!!!!!  
► apache24 default build changed from static MPM to modular MPM  
- more modules are now enabled per default in the port  
- icons and error pages moved from WWWDIR to DATADIR  
  
If build with modular MPM and no MPM is activated in  
httpd.conf, then mpm_prefork will be activated as default  
MPM in etc/apache24/modules.d to keep compatibility with  
existing php/perl/python modules!  
  
Please compare the existing httpd.conf with httpd.conf.sample  
and merge missing modules/instructions into httpd.conf!  
!!!!!!  
root@salmon:~ #
```

Apache24 Installation Success

```
#sysrc apache24_enable=yes //Enable Startup  
  
#service apache24 start //Start Apache Webserver  
  
#pkg install mysql56-server
```

```
root@salmon:~ # pkg install mysql56-server  
Updating FreeBSD repository catalogue...  
FreeBSD repository is up to date.  
All repositories are up to date.  
The following 5 package(s) will be affected (of 0 checked):  
  
New packages to be INSTALLED:  
    mysql56-server: 5.6.41  
    libevent: 2.1.8_2  
    libedit: 3.1.20170329_2,1  
    mysql56-client: 5.6.41  
    liblz4: 1.8.3,1  
  
Number of packages to be installed: 5  
  
The process will require 111 MiB more space.  
9 MiB to be downloaded.  
  
Proceed with this action? [y/N]:
```

Press Y and Enter to Install

```
#sysrc mysql _enable=yes //Enable Startup  
#service mysql-server start //Start MySQL Server  
#mysql_secure_installation //Configure Password for MySQL root user.
```

```
Enter current password for root (enter for none):  
OK, successfully used password, moving on...  
Setting the root password ensures that nobody can log into the MySQL  
root user without the proper authorisation.
```

```
Set root password? [Y/n] y  
New password:  
Re-enter new password:  
Password updated successfully!  
Reloading privilege tables..  
... Success!
```

```
By default, a MySQL installation has an anonymous user, allowing anyone  
to log into MySQL without having to have a user account created for  
them. This is intended only for testing, and to make the installation  
go a bit smoother. You should remove them before moving into a  
production environment.
```

```
Remove anonymous users? [Y/n] Y
```

1. Enter Current Password (Press Enter for none): [Enter]
2. Set root password? [Y/n] : y [Enter] //Set your MySQL root password
3. Remove anonymous users? [Y/n]: y [Enter]
4. Disallow root login remotely ? [Y/n]: y [Enter]
5. Remote test database and access to it? [Y/n]: y [Enter]
6. Reload privileges tables now? [Y/n]: y [Enter]

```
#pkg install mod_php56 php56-mysql php56-mysqli php56-gd php56-  
extensions
```

```
php56-xmlwriter: 5.6.38  
php56-xmlreader: 5.6.38  
php56-dom: 5.6.38  
php56-xml: 5.6.38  
php56-simplexml: 5.6.38  
php56-ctype: 5.6.38  
php56-posix: 5.6.38  
php56-hash: 5.6.38  
php56-filter: 5.6.38  
php56-tokenizer: 5.6.38  
php56-json: 5.6.38  
php56-sqlite3: 5.6.38  
sqlite3: 3.25.1  
php56-pdo_sqlite: 5.6.38  
php56-pdo: 5.6.38  
php56-iconv: 5.6.38  
libiconv: 1.14_11  
php56-phar: 5.6.38
```

```
Number of packages to be installed: 25
```

```
The process will require 31 MiB more space.  
5 MiB to be downloaded.
```

```
Proceed with this action? [y/N]:
```

Press Y and Enter to Install

```
# cp /usr/local/etc/php.ini-production /usr/local/etc/php.ini
#rehash
# ee /usr/local/etc/apache24/httpd.conf

GNU nano 3.1          /usr/local/etc/apache24/httpd.conf

ServerName noc.tangerangkota.local:80

#
# Deny access to the entirety of your server's filesystem. You must
# explicitly permit access to web content directories in other
# <Directory> blocks below.
#
```

Line 226 : Set Your ServerName, remove the (#). Example: noc.tangerangkota.local

```
#
# DirectoryIndex: sets the file that Apache will serve if a directory
# is requested.
<IfModule dir_module>
    DirectoryIndex index.html index.php
</IfModule>

#
# The following lines prevent .htaccess and .htpasswd files from being
# viewed by Web clients.
```

Line 284 : Add index.php

```
#
# Filters allow you to process content before it is sent to the client.
#
# To parse .shtml files for server-side includes (SSI):
# (You will also need to add "Includes" to the "Options" directive.)
#
#AddType text/html .shtml
#AddOutputFilter INCLUDES .shtml
AddType application/x-httpd-php .php
AddType application/x-httpd-php-source .phps
</IfModule>
```

Line 444 : Add this script to httpd.conf (Before </IfModule>) for PHP Support

```
AddType application/x-httpd-php .php
```

```
AddType application/x-httpd-php-source .phps
```

```
LoadModule alias_module libexec/apache24/mod_alias.so
LoadModule rewrite_module libexec/apache24/mod_rewrite.so
LoadModule php5_module           libexec/apache24/libphp5.so
```

Line 180 : Remove the (#) to activate rewrite module.

```
#service apache24 restart
```

```
root@salmon:~ # service apache24 restart
Performing sanity check on apache24 configuration:
Syntax OK
Stopping apache24.
Waiting for PIDS: 1792.
Performing sanity check on apache24 configuration:
Syntax OK
Starting apache24.
root@salmon:~ #
```

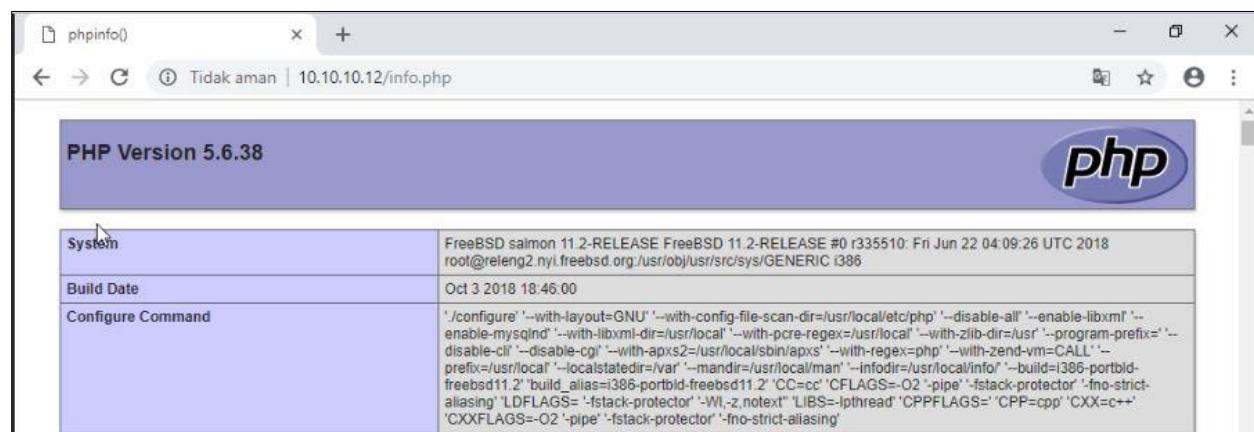
```
#ee /usr/local/www/apache24/data/info.php
```

```
GNU nano 3.1          /usr/local/www/apache24/data/info.php          Modified
<?php phpinfo(); ?>
```

To check php's work correctly. Create file with script above.



To verify that Apache has been installed correctly we will check the IP address of FreeBSD from browser.



Check PHP Configuration from browser. [yourip or domain]/your_php_info_file.php.

Example: 10.10.10.12/info.php

SSH CONFIGURATION

```
#ee /etc/ssh/sshd_config
```

```
# Note that some of FreeBSD's defaults differ from OpenBSD's, and
# FreeBSD has a few additional options.

Port 1212
#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::
```

For Security Reason, change your ssh's default port to not used port. Remove the (#) and change port. Example: 1212. (Line 17)

```
#LoginGraceTime 2m
PermitRootLogin no
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10
```

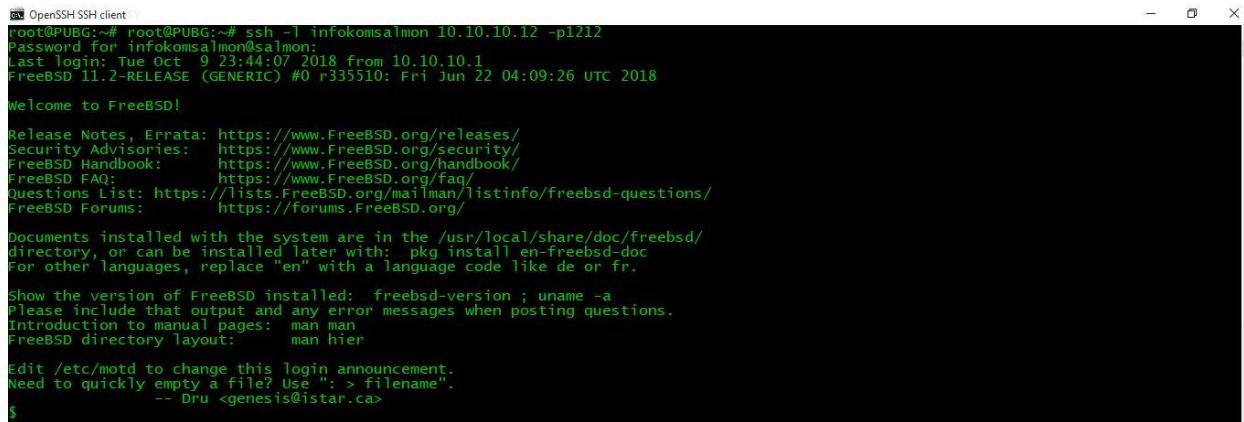
And also disable permit root login with remove the sign (#). (Line 37)

If you not create other user at installation step, you must create other user for login into the server. Because root user is not permitted to login. In this case, I was created other user, so i don't need to create another user again.

```
#service sshd restart
```

Now, try to remote your server.

```
#ssh -l infokomsalmon 10.10.10.12 -p1212 //Example
```



The screenshot shows a terminal window titled "OpenSSH SSH client". The command entered is "# ssh -l infokomsalmon 10.10.10.12 -p1212". The response includes:

- SSH connection details: "root@PUBG:~# root@PUBG:~# ssh -l infokomsalmon 10.10.10.12 -p1212"
- Authentication: "Password for infokomsalmon@salmon:"
- Login information: "Last login: Tue Oct 9 23:44:07 2018 from 10.10.10.1"
- System information: "FreeBSD 11.2-RELEASE (GENERIC) #0 r335510: Fri Jun 22 04:09:26 UTC 2018"
- Welcome message: "Welcome to FreeBSD!"
- Release Notes, Errata, Security Advisories, FreeBSD Handbook, FAQ, Questions List, and FreeBSD Forums links.
- Document installation instructions: "Documents installed with the system are in the /usr/local/share/doc/freebsd/ directory, or can be installed later with: pkg install en-freebsd-doc"
- Language substitution: "For other languages, replace "en" with a language code like de or fr."
- Version checking: "Show the version of FreeBSD installed: freebsd-version ; uname -a"
- Introduction to manual pages: "Please include that output and any error messages when posting questions."
- FreeBSD directory layout: "Introduction to manual pages: man man Freebsd directory layout: man hier"
- File editing: "Edit /etc/motd to change this login announcement."
- User note: "Need to quickly empty a file? Use ": > filename".
- Credit: "-- Dru <genesis@istar.ca>"

To change user to root, run this command and enter your root's password

```
#su -
```

VIRTUAL HOST CONFIGURATION

```
#ee /usr/local/etc/apache24/Include/vhost.conf
```

```
<VirtualHost *:80>
    ServerName www.tangerangkota.local
    ServerAdmin noc.kominfo@tangerangkota.go.id
    DocumentRoot /usr/local/www/apache24/data/vhost/
    <Directory /usr/local/www/apache24/data/vhost>
        AllowOverride All
        Options -MultiViews
        Require all granted
    </Directory>
</VirtualHost>

#Disable Trace Method
RewriteEngine on
RewriteCond %{REQUEST_METHOD} ^(TRACE|TRACK)
RewriteCond %{THE_REQUEST} !HTTP/1.1$
RewriteRule .* - [F]

#Disable ClickJacking XFRAME
Header always append X-Frame-Options SAMEORIGIN

#Hidden the Apache Version
ServerTokens Prod
ServerSignature Off

#Disable Etag File
FileETag None

#Blocking XSS
Header set X-XSS-Protection "1; mode=block"

#Set Time Out
Timeout 60

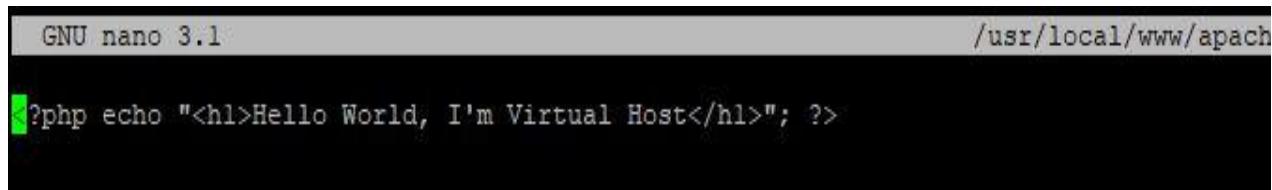
Header set X-Content-Type-Options nosniff

#Disable TRACE METHOD
TraceEnable off
```

Add The Script Above to vhost.conf

```
#mkdir /usr/local/www/apache24/data/vhost/
```

```
#ee /usr/local/www/apache24/data/vhost/index.php
```



```
GNU nano 3.1 /usr/local/www/apache24/data/vhost/index.php
<?php echo "<h1>Hello World, I'm Virtual Host</h1>"; ?>
```

```
#service apache24 restart
```



Visit http://your_server_ip to check vhost configuration

CHANGE OR CONFIGURE IP ADDRESS AND HOSTNAME

```
#ee /etc/rc.conf
```

For static IP Address

```
hostname="salmon.tangerangkota.local" //Your Hostname  
ifconfig_em0="inet 10.10.10.12 netmask 255.255.255.0" //Your IP Address  
defaultrouter="10.10.10.1" //Your Internet Gateway  
sshd_enable="YES"  
# Set dumpdev to "AUTO" to enable crash dumps, "NO" to disable  
dumpdev="AUTO"  
zfs_enable="YES"  
apache24_enable="yes"  
mysql_enable="yes"
```

For dhcp IP Address

```
hostname="salmon.tangerangkota.local" //Your Hostname  
ifconfig_em0="DHCP" //Set Value to DHCP  
sshd_enable="YES"  
# Set dumpdev to "AUTO" to enable crash dumps, "NO" to disable  
dumpdev="AUTO"  
zfs_enable="YES"  
apache24_enable="yes"  
mysql_enable="yes"
```

```
#/etc/rc.d/netif restart
```

```
#ee /etc/hosts
```

```
# $FreeBSD: releng/11.2/etc/hosts 109997 2003-01-28 21:29:23Z dbaker $
#
# Host Database
#
# This file should contain the addresses and aliases for local hosts
that
# share this file. Replace 'my.domain' below with the domainname of
your
# machine.
#
# In the presence of the domain name service or NIS, this file may
# not be consulted at all; see /etc/nsswitch.conf for the resolution
order.
#
#
::1           localhost localhost.my.domain
127.0.0.1     localhost localhost.my.domain
10.10.10.12   salmon.tangerangkota.local //Add Your Hostname Here
#
# Imaginary network.
#10.0.0.2      myname.my.domain myname
#10.0.0.3      myfriend.my.domain myfriend
#
# According to RFC 1918, you can use the following IP networks for
# private nets which will never be connected to the Internet:
#
#      10.0.0.0      -      10.255.255.255
#      172.16.0.0    -      172.31.255.255
#      192.168.0.0   -      192.168.255.255
#
# In case you want to be able to connect to the Internet, you need
# real official assigned numbers. Do not try to invent your own network
# numbers but instead get one from your network provider (if any) or
# from your regional registry (ARIN, APNIC, LACNIC, RIPE NCC, or
AfriNIC.)
```

To check your hostname configuration, run this command

```
#hostname -a //To Check Hostname Alias
```

```
#hostname -f //To Check Hostname and Domain
```

```
#hostname -s //To Check Hostname Only
```

CONFIGURE DNS SERVER

```
#portsnap fetch update  
#portsnap extract  
#cd /usr/ports/dns/bind99  
#make install clean  
#ee /usr/local/etc/namedb/named.conf
```

```
// If named is being used only as a local resolver, this is a safe default.  
// For named to be accessible to the network, comment this option, specify  
// the proper IP address, or delete this option.  
// listen-on { 127.0.0.1; };
```

Line 22: Add double slash

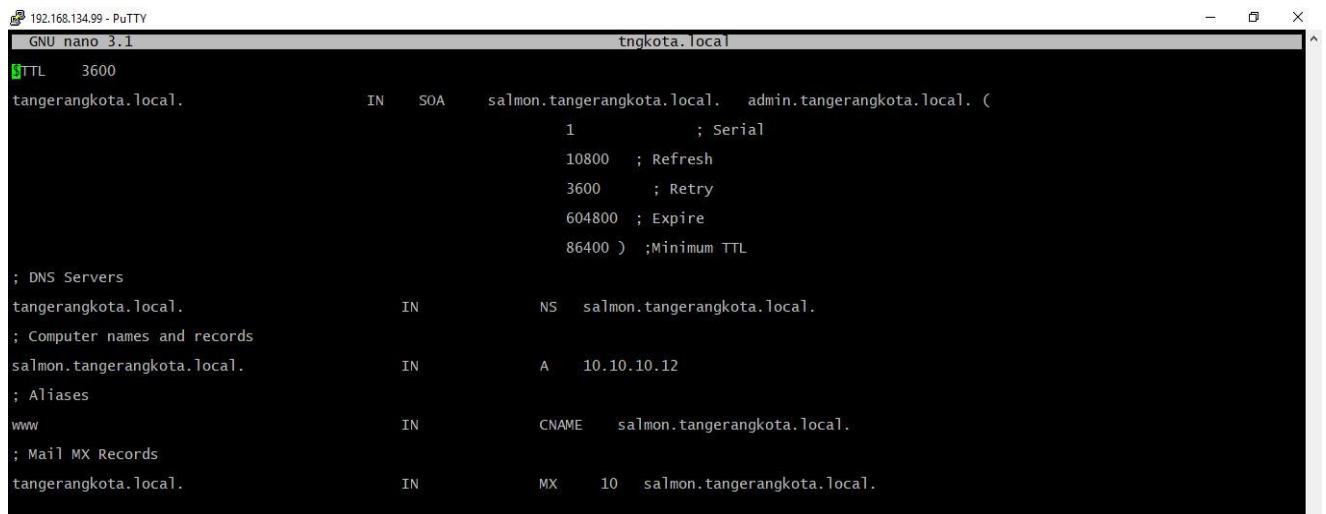
```
forwarders {  
    10.10.10.12;  
    8.8.8.8;  
};
```

Line 38 : Remove comment (/*...*/) and set your dns public IP here.

```
zone tangerangkota.local {  
    type master;  
    file "/usr/local/etc/namedb/master/tngkota.local";  
};  
  
zone 10.10.10.in-addr.arpa {  
    type master;  
    file "/usr/local/etc/namedb/master/tngkota.local.rev";  
};
```

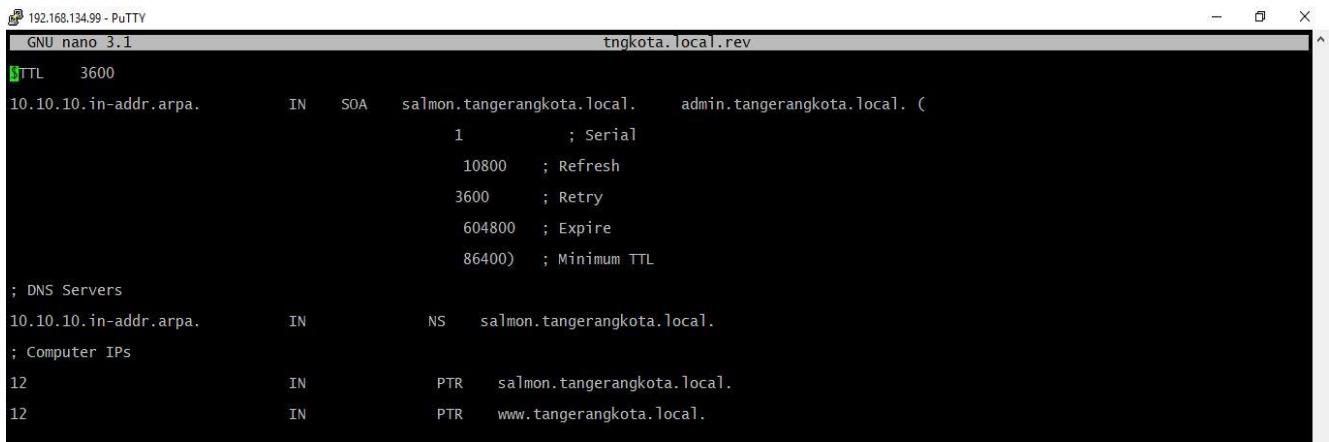
End of Line : Add this script for forward and reverse zone.

```
#ee /usr/local/etc/namedb/master/tngkota.local
```



```
192.168.134.99 - PuTTY  
GNU nano 3.1  
tngkota.local  
TTL 3600  
tangerangkota.local. IN SOA salmon.tangerangkota.local. admin.tangerangkota.local. (  
    1 ; Serial  
    10800 ; Refresh  
    3600 ; Retry  
    604800 ; Expire  
    86400 ) ;Minimum TTL  
; DNS Servers  
tangerangkota.local. IN NS salmon.tangerangkota.local.  
; Computer names and records  
salmon.tangerangkota.local. IN A 10.10.10.12  
; Aliases  
www IN CNAME salmon.tangerangkota.local.  
; Mail MX Records  
tangerangkota.local. IN MX 10 salmon.tangerangkota.local.
```

```
#ee /usr/local/etc/namedb/master/tngkota.local.rev
```



```
192.168.134.99 - PuTTY
GNU nano 3.1                                     tngkota.local.rev
$TTL 3600
10.10.10.in-addr.arpa.      IN  SOA   salmon.tangerangkota.local.  admin.tangerangkota.local. (
                                1           ; Serial
                                10800     ; Refresh
                                3600      ; Retry
                                604800    ; Expire
                                86400)    ; Minimum TTL
;
; DNS Servers
10.10.10.in-addr.arpa.      IN  NS    salmon.tangerangkota.local.
;
; Computer IPs
12                           IN  PTR   salmon.tangerangkota.local.
12                           IN  PTR   www.tangerangkota.local.
```

```
#ee /etc/resolv.conf
```

```
search google.com
search tangerangkota.local
nameserver 10.10.10.12
nameserver 8.8.8.8
```

Add this script.

```
#sysrc named_enable="YES"
```

```
#/etc/rc.d/named start
```

```
#dig www.tangerangkota.local //Check Forward DNS
```

```
; <>> DiG 9.9.12 <>> www.tangerangkota.local
;; global options: +cmd
;; Got answer:
;; WARNING: .local is reserved for Multicast DNS
;; You are currently testing what happens when an mDNS query is leaked to DNS
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 64104
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;www.tangerangkota.local.      IN      A

;; ANSWER SECTION:
www.tangerangkota.local. 3600    IN      CNAME   salmon.tangerangkota.local.
salmon.tangerangkota.local. 3600    IN      A       10.10.10.12

;; AUTHORITY SECTION:
tangerangkota.local.      3600    IN      NS      salmon.tangerangkota.local.

;; Query time: 0 msec
;; SERVER: 10.10.10.12#53(10.10.10.12)
;; WHEN: Sat Oct 13 10:59:49 WIB 2018
;; MSG SIZE  rcvd: 103
```

```
#dig -x 10.10.10.12 //Check Reverse DNS
```

```
; <>> DiG 9.9.12 <>> -x 10.10.10.12
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 39913
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 1, ADDITIONAL: 2

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
12.10.10.10.in-addr.arpa. IN PTR

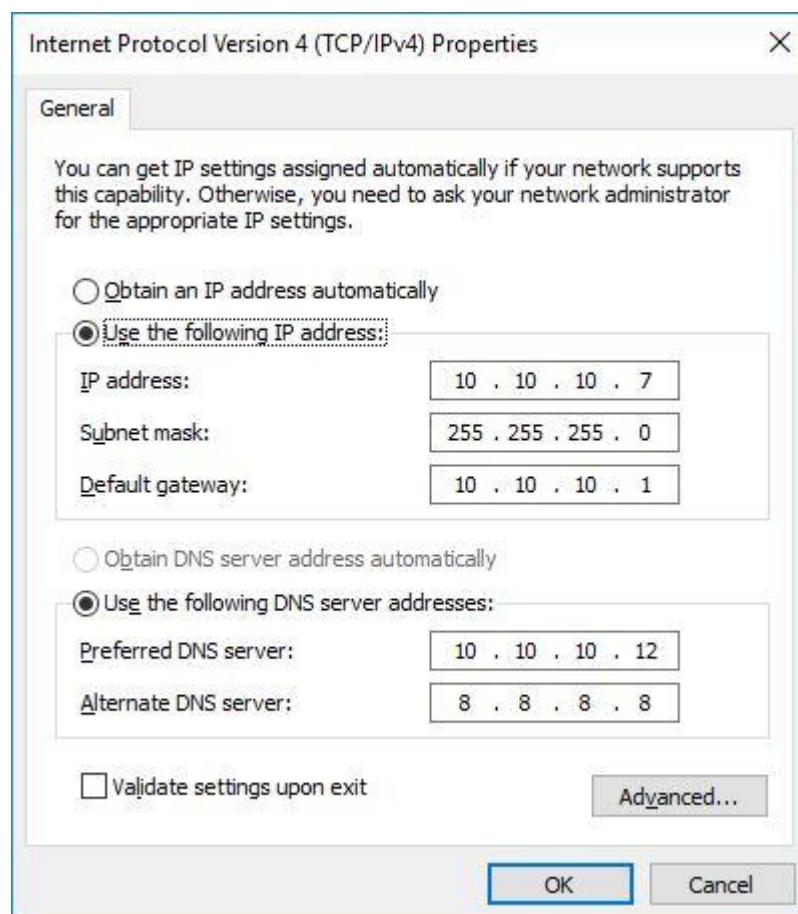
;; ANSWER SECTION:
12.10.10.10.in-addr.arpa. 3600 IN PTR www.tangerangkota.local.
12.10.10.10.in-addr.arpa. 3600 IN PTR salmon.tangerangkota.local.

;; AUTHORITY SECTION:
10.10.10.in-addr.arpa. 3600 IN NS salmon.tangerangkota.local.

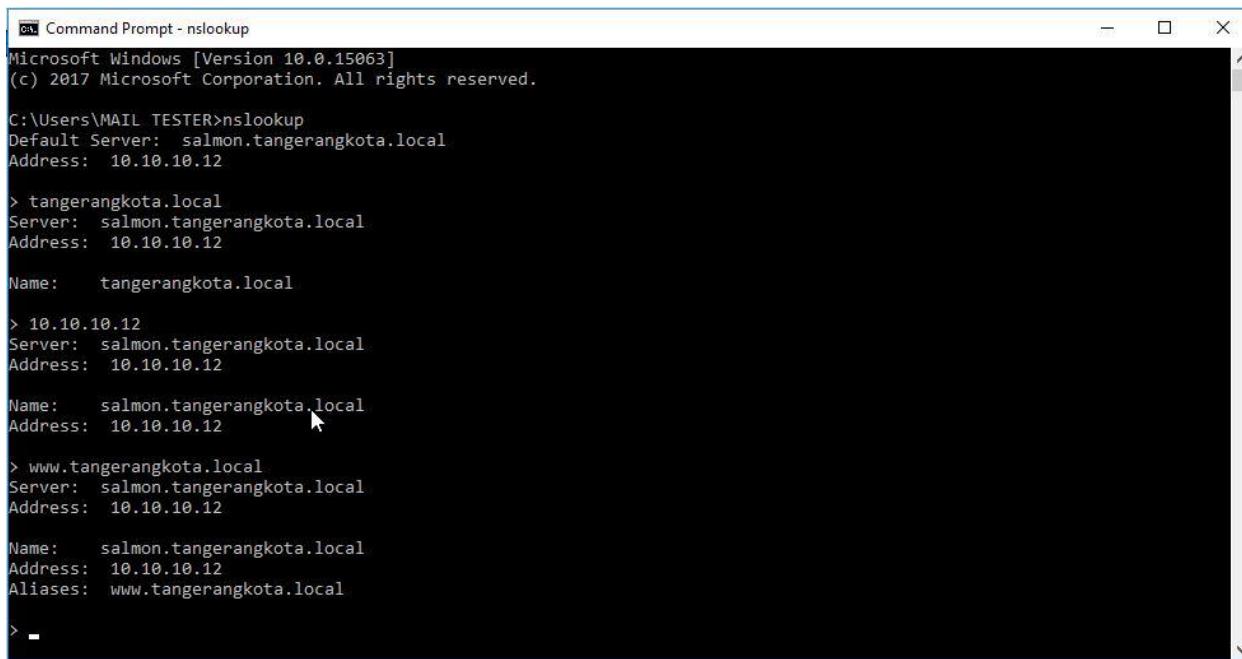
;; ADDITIONAL SECTION:
salmon.tangerangkota.local. 3600 IN A 10.10.10.12

;; Query time: 0 msec
;; SERVER: 10.10.10.12#53(10.10.10.12)
;; WHEN: Sat Oct 13 11:36:03 WIB 2018
;; MSG SIZE rcvd: 141
```

Now, you can check and visit your webserver with your domain from client. Set your DNS client to your DNS Server's IP. In this documentation, DNS's IP is 10.10.10.12.



Run nslookup command in your client's terminal. If configuration is correct you'll get this result.



```
Command Prompt - nslookup
Microsoft Windows [Version 10.0.15063]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\Users\MAIL TESTER>nslookup
Default Server: salmon.tangerangkota.local
Address: 10.10.10.12

> tangerangkota.local
Server: salmon.tangerangkota.local
Address: 10.10.10.12

Name: tangerangkota.local

> 10.10.10.12
Server: salmon.tangerangkota.local
Address: 10.10.10.12

Name: salmon.tangerangkota.local
Address: 10.10.10.12

> www.tangerangkota.local
Server: salmon.tangerangkota.local
Address: 10.10.10.12

Name: salmon.tangerangkota.local
Address: 10.10.10.12
Aliases: www.tangerangkota.local

> -
```

If client can't resolve your DNS Server, run ipconfig /flushdns command on windows terminal or you can add your DNS IP on /etc/resolv.conf if your client's using linux.

Visit your domain from browser.

