

Deploy Dual Stack Apache 2.4 with PHP 5.6 on FreeBSD 10.3

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This recipe assumes that you have already installed Dual Stack FreeBSD 10.3. If you haven't done this, do this now before starting the install of Dual Stack Apache 2.4. This recipe will work fine on any deployment of FreeBSD 10.3, on hardware, VirtualBox or AWS.

Install Dual Stack Apache 2.4

For many uses you need to install a web server. Apache 2.4 is a good choice for FreeBSD. PHP is also needed by many web applications. Those are the A and P of FAMP (FreeBSD / Apache / MySQL / PHP).

Apache 2.4 – Installation and Basic Configuration

As root, install the package apache24:

```
# pkg install apache24
```

Edit the file /usr/local/etc/apache24/httpd.conf:

Change

```
Listen 80
```

To the following

```
Listen 0.0.0.0:80
Listen [::]:80                (if supporting IPv6)
```

Change

```
ServerAdmin admin@your-domain.com
```

To

```
ServerAdmin admin@demo.sixscape.net    (use appropriate address)
```

Change

```
ServerName localhost:80
```

To

```
ServerName bsd.demo.sixscape.net:80    (use your nodename)
```

Edit /etc/rc.conf and add the following:

```
apache24_enable="YES"
```

Check your configuration files:

```
# apachectl configtest  
Performing sanity check on apache24 configuration:  
Syntax OK
```

Start Apache:

```
# apachectl start  
Performing sanity check on apache24 configuration:  
Syntax OK  
Starting apache24.
```

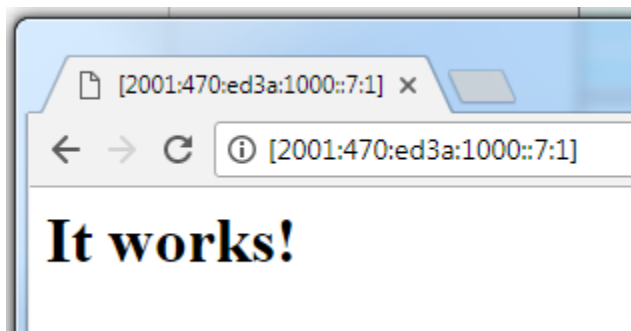
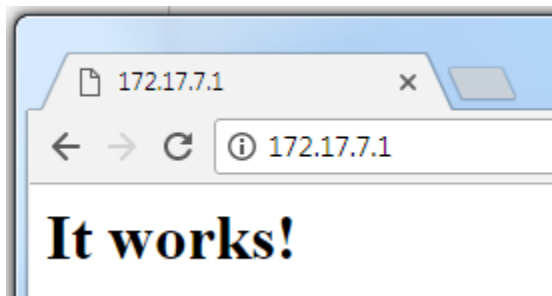
Verify Apache is running:

```
# ps -ax | grep http
767 - Ss    0:00.00 /usr/local/sbin/httpd -DNOHTTPACCEPT
768 - I     0:00.00 /usr/local/sbin/httpd -DNOHTTPACCEPT
769 - S     0:00.00 /usr/local/sbin/httpd -DNOHTTPACCEPT
770 - I     0:00.00 /usr/local/sbin/httpd -DNOHTTPACCEPT
771 - I     0:00.00 /usr/local/sbin/httpd -DNOHTTPACCEPT
772 - I     0:00.00 /usr/local/sbin/httpd -DNOHTTPACCEPT
774 0 R+    0:00.00 grep http
```

Verify it is listening on port 80 (on IPv4 and/or IPv6):

```
# netstat -na | more
Active Internet connections (including servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         (state)
tcp6   0      0 2001:470:ed3a:10.80    2001:470:ed3a:10.37799 FIN_WAIT_2
tcp6   0      0 2001:470:ed3a:10.80    2001:470:ed3a:10.37800 FIN_WAIT_2
tcp4   0      0 172.17.7.1.80         172.17.2.1.37616      TIME_WAIT
tcp4   0      0 172.17.7.1.80         172.17.2.1.37617      TIME_WAIT
tcp6   0      0 *.80                  *.*                     LISTEN
tcp4   0      0 *.80                  *.*                     LISTEN
tcp4   0      0 172.17.7.1.22        172.17.2.1.37075      ESTABLISHED
tcp4   0      0 127.0.0.1.25         *.*                     LISTEN
tcp4   0      0 *.22                  *.*                     LISTEN
tcp6   0      0 *.22                  *.*                     LISTEN
tcp6   0      0 *.389                 *.*                     LISTEN
tcp4   0      0 *.389                 *.*                     LISTEN
```

Try connecting with a browser:



Integrate PHP into Apache 2.4:

Edit the file `/usr/local/etc/apache24/httpd.conf` to support PHP:

Verify following line is now present (should have been added when `mod_php56` was installed):

```
LoadModule php5_module          libexec/apache24/libphp5.so
```

Find the following line:

```
DirectoryIndex index.html
```

Change it to:

```
DirectoryIndex index.html index.php
```

Find the following lines:

```
AddType application/x-compress .Z
AddType application/x-gzip .gz .tgz
```

Add the following lines after them:

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

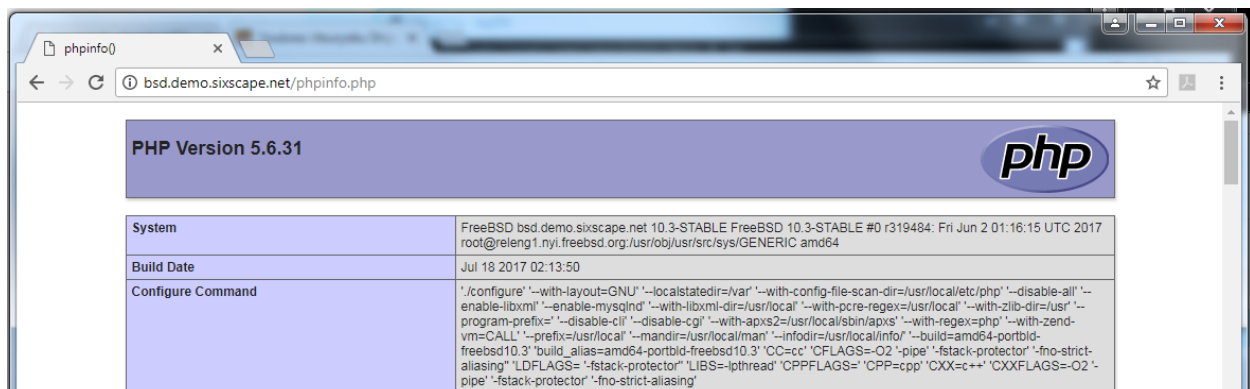
Restart Apache:

```
# apachectl restart
```

Create test php script in `/usr/local/www/apache24/data/phpinfo.php` with following contents:

```
<?php phpinfo(); ?>
```

Now surf to the server name followed by `/phpinfo.php`:



If you see the above output from `phpinfo()`, your PHP is fully functional.

Note: do not install `phpLDAPadmin` with `OpenLDAP-SASL` (not compatible)

Install ejabberd (XMPP Server)

ejabberd is a powerful XMPP server written in Erlang. It can be installed from the FreeBSD pkg system.

```
# pkg install ejabberd
```

```
Updating FreeBSD repository catalogue...
```

```
FreeBSD repository is up to date.
```

```
All repositories are up to date.
```

```
The following 4 package(s) will be affected (of 0 checked):
```

```
New packages to be INSTALLED:
```

```
  ejabberd: 17.07_1
  libyaml: 0.1.6_2
  erlang: 19.3.6.2,4
  libiconv: 1.14_10
```

```
Number of packages to be installed: 4
```

```
The process will require 170 MiB more space.
```

```
59 MiB to be downloaded.
```

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

```
[1/4] Fetching ejabberd-17.07_1.txz: 100%    7 MiB 486.0kB/s    00:15
[2/4] Fetching libyaml-0.1.6_2.txz: 100%   63 KiB  64.3kB/s    00:01
[3/4] Fetching erlang-19.3.6.2,4.txz: 100%  51 MiB 448.2kB/s    02:00
[4/4] Fetching libiconv-1.14_10.txz: 100% 604 KiB 154.6kB/s    00:04
```

```
Checking integrity... done (0 conflicting)
```

```
[1/4] Installing libyaml-0.1.6_2...
```

```
[1/4] Extracting libyaml-0.1.6_2: 100%
```

```
[2/4] Installing erlang-19.3.6.2,4...
```

```
[2/4] Extracting erlang-19.3.6.2,4: 100%
```

```
[3/4] Installing libiconv-1.14_10...
```

```
[3/4] Extracting libiconv-1.14_10: 100%
```

```
[4/4] Installing ejabberd-17.07_1...
```

```
==> Creating groups.
```

```
Creating group 'ejabberd' with gid '543'.
```

```
==> Creating users
```

```
Creating user 'ejabberd' with uid '543'.
```

```
Extracting ejabberd-17.07_1: 100%
```

```
Message from erlang-19.3.6.2,4:
```

```
=====  
Installation tips:
```

```
You can find an emacs mode for Erlang here:
```

```
    /usr/local/lib/erlang/lib/tools-2.9.1/emacs
```

```
=====  
Message from ejabberd-17.07_1:
```

```
-----  
Congratulations, you have installed ejabberd!
```

- o To enable ejabberd you need to add following string to your /etc/rc.conf:

```
    ejabberd_enable="YES"
```

- o Config samples are located in /usr/local/etc/ejabberd - please, create working ones before running ejabberd.
- o The home directory is /var/spool/ejabberd
- o PLEASE NOTE! "ejabberd" user UID and GID have changed from version 2.0.3 of this port! Users are advised to check all configuration files and data

in `/var/spool/ejabberd` to ensure everything has the correct owner/group.

Once the `pkg_install` is done, add the following line to `/etc/rc.conf`:

```
ejabbed_enable="YES"
```

Edit the file `/usr/local/etc/ejabberd`:

Optional: Install the X Window System and the Gnome Look and Feel Layer

Your copy of FreeBSD is now adequate for running all kinds of services, such as web, email, sshd, etc. If you plan to use it directly, and like a GUI interface, you can now install that. This does take a lot more memory and hard disk than the command line version we already have running, but if you want to run GUI applications on your node (e.g. Mozilla browser), you need to install Gnome (or one of the other available Look and Feel layers, such as KDE).

Everything you need is in the FreeBSD package system. You could build the components using the ports system, but it would take quite a while. You will install Xorg (the X11 Window System) and Gnome3 (a popular Look and Feel layer for Xorg). We will install using from the Internet using *pkg_add*. Depending on your bandwidth, it could be faster to build from the ports.

Step 1a – Install the Xorg and Gnome packages via pkg, via the Internet

Note: this can take a long time, depending on your Internet speed

To install Xorg using *pkg_add* via the Internet, use the following command:

```
# pkg install xorg
```

To install Gnome using *pkg_add*, via the Internet, use the following command:

```
# pkg_install gnome3
```

To use Xorg and Gnome in VirtualBox, install the VirtualBox OSE additions

```
# pkg install virtualbox-ose-additions
```

Step 1b – Install the Xorg and Gnome packages using the ports system

To install Xorg using the ports system, use the following commands. This can take a VERY long time, depending on your Internet speed:

```
# cd /usr/ports/x11/xorg
# make -DBATCH install clean
```

To install Gnome3 using the ports system, use the following commands:

```
# cd /usr/ports/x11/gnome3
# make -DBATCH install clean
```

Step 2 – Arrange for Gnome to start automatically at boot time (add following into /etc/rc.conf)

```
dbus_enable="YES"
hald_enable="YES"
gdm_enable="YES"
gnome_enable="YES"
```

If using VirtualBox, also add the following lines into /etc/rc.conf:

```
vboxguest_enable="YES"
vboxservice_enable="YES"
```


Example working /etc/rc.conf, using VirtualBox:

```
# Configuration file for FreeBSD 10.3
hostname="freebsd10.sg.sixsscape.net"

#IPv4 Network Configuration
ifconfig_em0="172.17.6.10 netmask 255.255.0.0"
defaultrouter="172.17.0.1"

# IPv6 Network Configuration
ifconfig_em0_ipv6="inet6 2001:470:ed3a:1000::6:10 prefixlen 64"
ipv6_defaultrouter="2001:470:ed3a:1000::1"

# Enable desired services at boot time
dbus_enable="YES"
hald_enable="YES"
vboxguest_enable="YES"
vboxservice_enable="YES"
sshd_enable="YES"
moused_enable="YES"
gdm_enable="YES"
gnome_enable="YES"
ntpd_enable="YES"

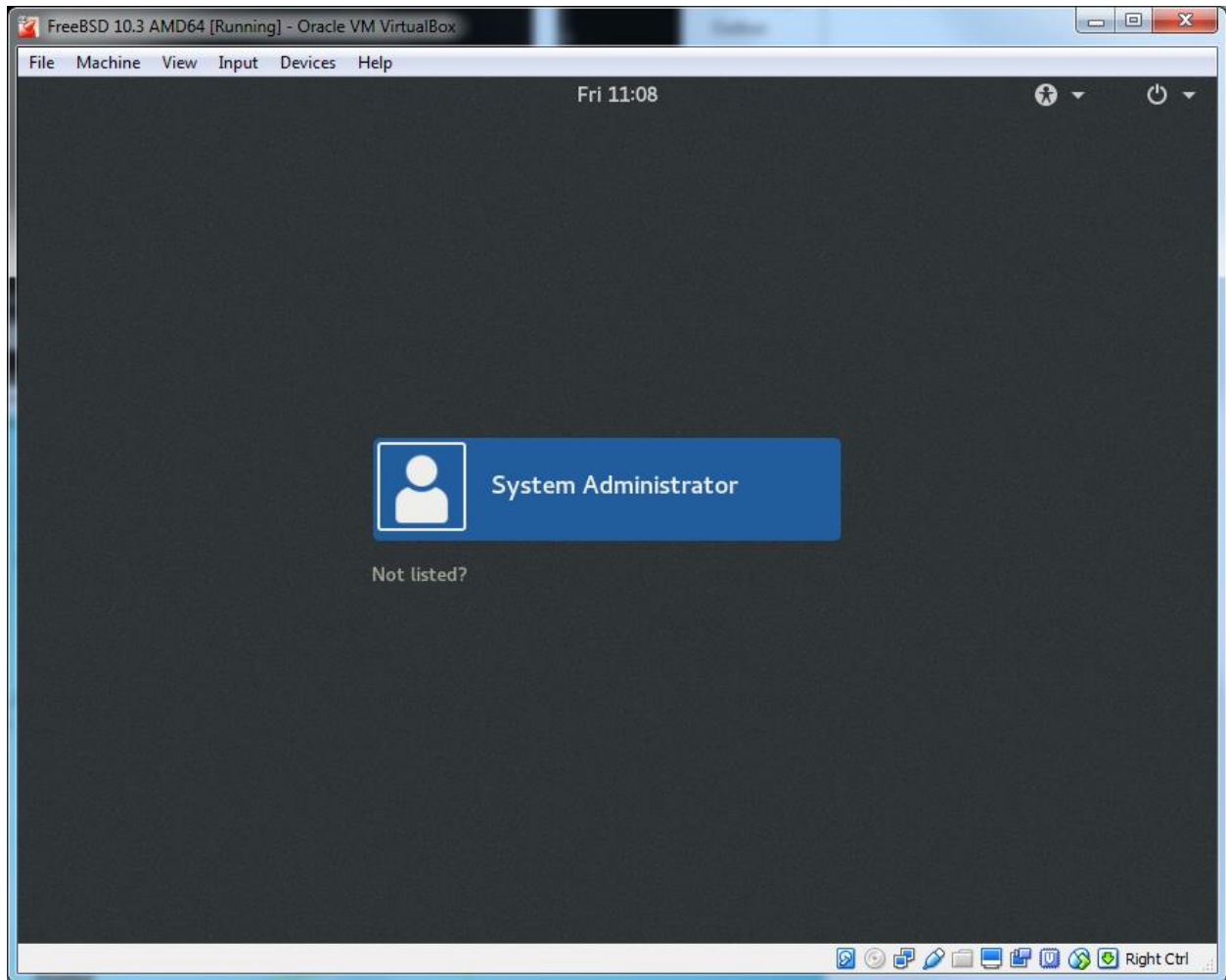
# Set dumpdev to "AUTO" to enable crash dumps, "NO" to disable
dumpdev="AUTO"
```

Reboot your system

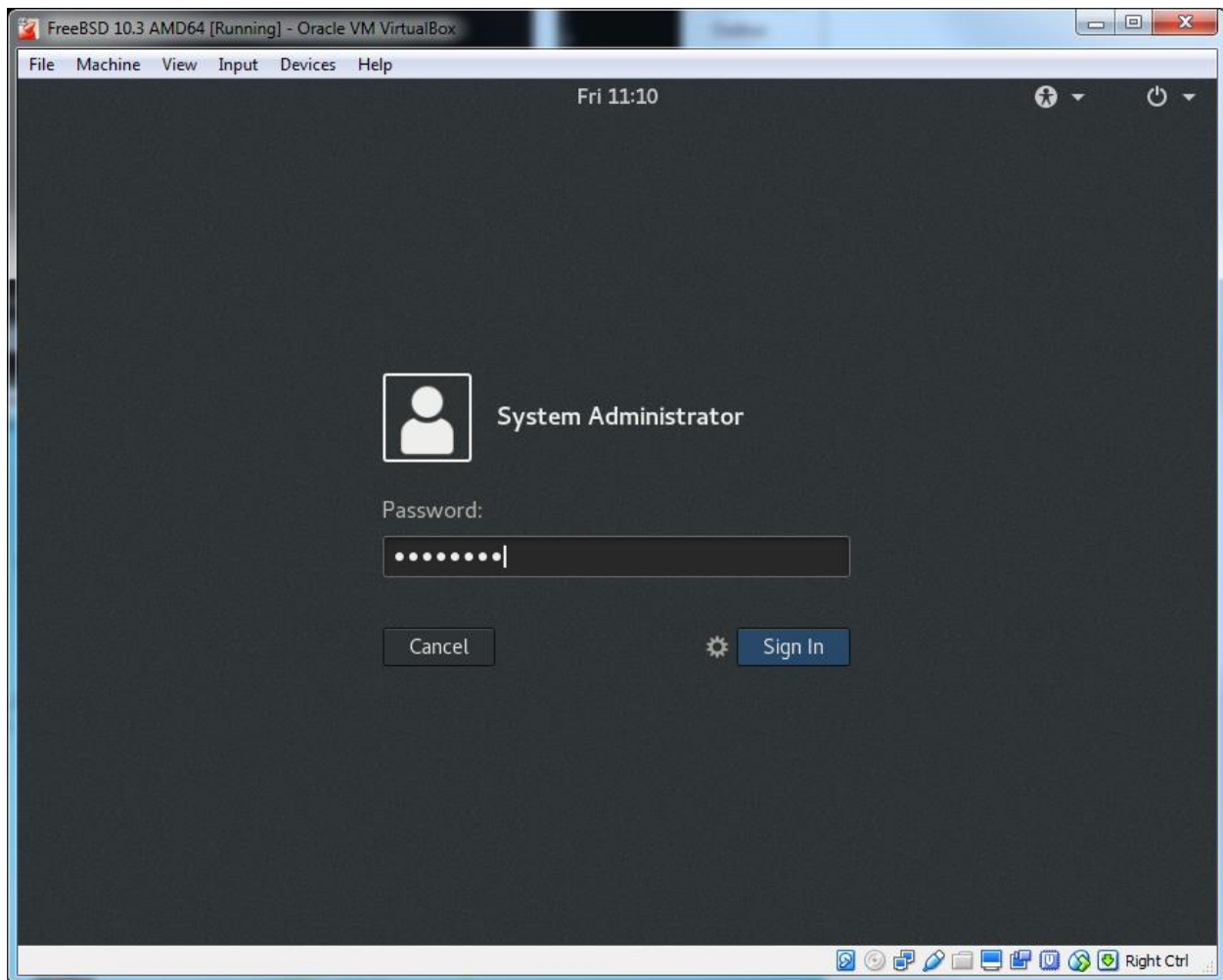
```
# reboot
```

The Gnome GUI will come up automatically after the reboot. You will first see a login prompt in CLI mode. Don't try to login in the text prompt – wait for the GUI login screen.

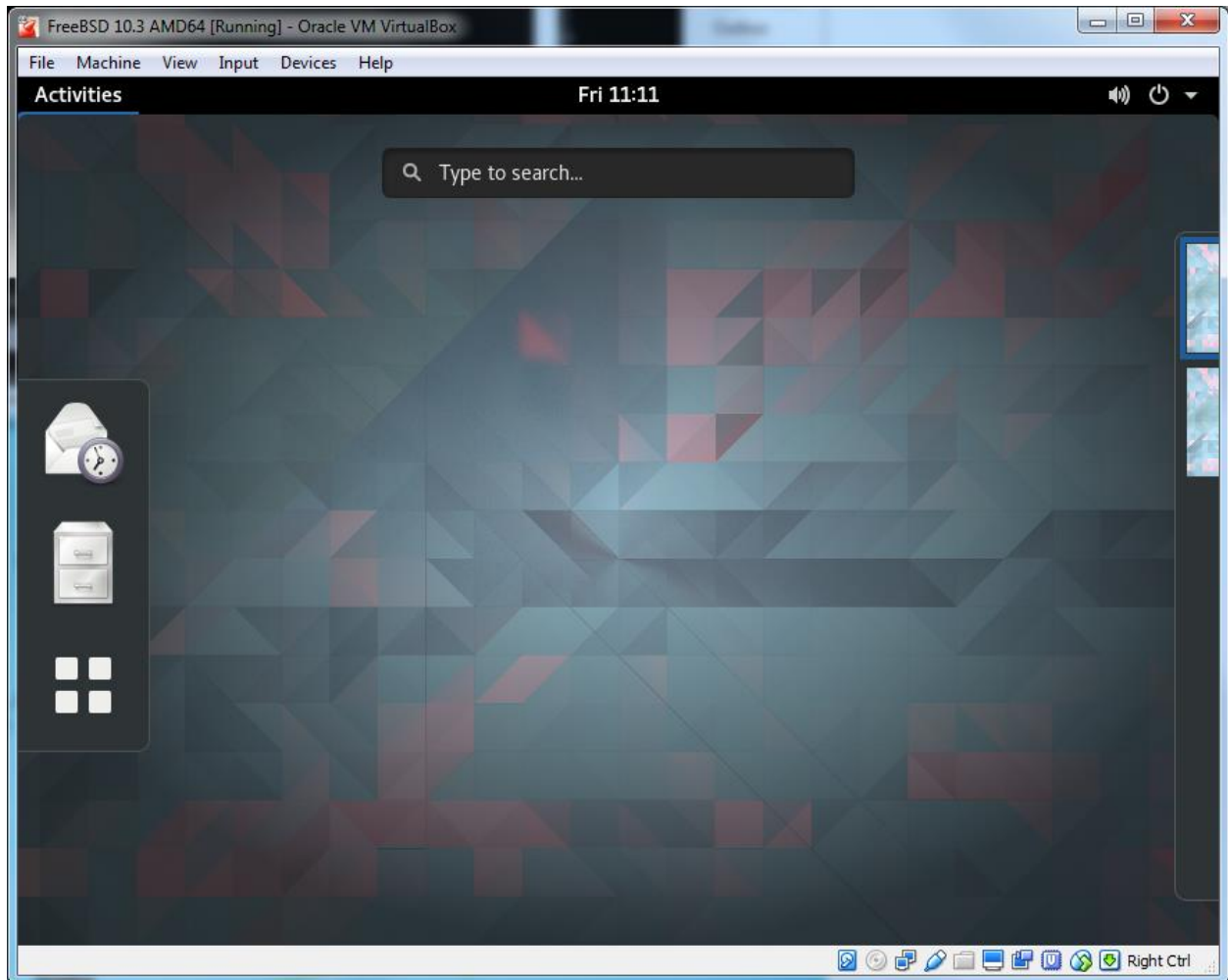
Just wait for a few seconds, while X11 and Gnome load. The available users will be listed in the *gdm* User List.



Use the arrow keys to select a user (e.g. *System Administrator*) then press Enter to login as them.



Enter the correct password for that user, followed by *Enter* (or click the *Sign In* button). Note that *root* does not appear in the list of available users. You can of course login as *admin* and use *su* to elevate to root privilege (or use *sudo* to issue one command at root privilege) in a *terminal* app. Note that one of the dependencies installed with Gnome2 is the Apache 2.2 web server.



If you ever want to go back to a text-only (Command Line Interface) FreeBSD system, just comment out the `gnome_enable` line in file `/etc/rc.conf` (change it to `#gnome_enable="YES"`), and reboot.