

# Basic FreeBSD Installation

My basic FreeBSD installation is slightly different from the “norm” in that we manually configure the boot drive (usually an SSD) and add some additional packages we need. Here is the “Daily Data” way of building a server. Note that you have to be flexible; modify this as needed.

## Installation

For the most part, we have a single disk for the boot drive. This will hold all of the software needed to have a working system. In order to make life easier, I remove all drives except the system drive, then boot from the FreeBSD installation thumbdrive.

When it comes time to partition the drive, I choose *manual* and set up from the command line. The main reason for this is that the FreeBSD installer in automatic mode does not allow you to set up without a swap partition, and I like **swap files** instead of swap partitions. While possibly slower, you have the flexibility to adjust the amount of space allocated to swap. This has saved me headaches in the past.

From the command line, do the following. This assumes your boot drive is ada0. This is directly stolen from <http://www.wonkity.com/~wblock/docs/html/ssd.html>, though it is summarized here.

```
# create a gpt partitioning scheme on /dev/ada0
gpart create -s gpt ada0
# add a very, very small partition for boot
gpart add -t freebsd-boot -s 512k -a4k -l ssdboot ada0
# set it up to be bootable
gpart bootcode -b /boot/pmbr -p /boot/gptboot -i1 ada0
# now, add the rest of space as a second partition
# if you want, you can specify the size with the -s parameter
# as in '-s 100g' to only use 100G
gpart add -t freebsd-ufs -l ssdrootfs -b 1m ada0
# format the second partition.
# NOTE: the -t option below turns on TRIM for SSD's
# you can remove that if you are not using an SSD
newfs -U -t /dev/gpt/ssdrootfs
```

**Note:** the referenced article actually uses separate partitions for /var and /usr. In my case, we are generally setting things up in a way that this is just over complication, though in some installations it is necessary to break it down further.

Complete the installation and reboot.

## Post Installation Partitions

Note that /tmp is missing and there is no swap space. The first thing I want to do is set /tmp and

/var/tmp to use the same ramdisk (aka tmpfs). Assuming I have sufficient RAM, I can allocate some space for tmp, which makes things faster and cleaner.

Additionally, I want to create a swap file to replace the partition. Swap is very nice to have, but rarely used, but I had one case where my swap partition was just too damned small and the server started acting squirrely whenever there was a lot of ZFS activity.

```
# create a 4G file to be used for swap space. modify size as necessary
dd if=/dev/zero of=/swapfile bs=1G count=4
# Create the entry in fstab
echo 'md99 none swap sw,file=/swapfile 0 0' >> /etc/fstab
# create a tmpfs entry in fstab for /tmp
echo 'tmpfs /tmp tmpfs rw,mode=01777 0 0' >> /etc/fstab
# move /var/tmp to point to /tmp
rm -fR /var/tmp
ln -s /tmp /var/tmp
# activate /tmp. This could cause instability
rm -fR /tmp/*
mount /tmp
# Just to be on the safe side, reboot
reboot
```

I generally like some things that are not installed by default for FreeBSD (or Debian Linux, or Microsoft Windows, or Apple OSX, for that matter). For instance, I accept the larger size of bash for the extra functionality, and I'm lost without the joe editor

Because of that, I tend to write sets of scripts and/or instructions.

[basicinstall.sh](#)

```
#!/usr/bin/env sh

#NOTE: this is an sh script, the default for FreeBSD
#sh requires the # for a comment be a part of a word,
#thus the commenting style here.
#we install bash which is a more powerful shell that I
#like a lot.

#install some basic tools. screen is a very useful tool.
#I use sudo to give users access to root without knowing the password

pkg install joe postfix bash perl5 pv pbzip2 sudo screen

#Expect the question, and answer "Y" for yes
#Would you like to activate Postfix in /etc/mail/mailer.conf [n]? y

#now that they are installed, start configuring them.

#Add IPMI if desired. Note that IPMI is only useful
#for physical machines that have the IPMI interface
```

```
#enable ipmi module
pkg install ipmitool
kldload ipmi
echo 'ipmi_load="YES"' >> /boot/loader.conf

#set up bash
mount -t fdescfs fdesc /dev/fd
cp /etc/fstab /etc/fstab.bak
echo '# enable bash' >> /etc/fstab
echo 'fdesc /dev/fd fdescfs rw 0 0' >> /etc/fstab
chsh -s bash rodolico

#shut down sendmail, disable it, and enable postfix
service sendmail stop
sysrc postfix_enable="YES"
sysrc sendmail_enable="NONE"

#sets up postfix configuration as only mail server
mv /etc/mail/mailer.conf /etc/mail/mailer.conf.old
install -m 0644 /usr/local/share/postfix/mailer.conf.postfix
/etc/mail/mailer.conf

#clean up some stuff left over by sendmail
echo 'daily_clean_hoststat_enable="NO"' >> /etc/periodic.conf
echo 'daily_status_mail_rejects_enable="NO"' >> /etc/periodic.conf
echo 'Daily_status_include_submit_mailq="NO"' >> /etc/periodic.conf
echo 'daily_submit_queuerun="NO"' >> /etc/periodic.conf
#add postfix user to mail group so it has access to sasl
pw group mod mail -m postfix
#start postfix
service postfix start
#configuration stored in /usr/local/etc/postfix
```

Note: when you created a new user, if you did not add them to the wheel group, you will need to do that after the fact (or they can not issue the su command to become root). Add a user to the wheel group with the following:

```
pw user mod username -G wheel
```

where *username* is the username you want to add.

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