

III

FreeBSD

FreeBSD

FreeBSD

11

11.1

FreeBSD

FreeBSD

가

FreeBSD

:

-

- rc.conf /usr/local/etc/rc.d

-

가

-

가

가

-

/etc

가

-

sysctl

FreeBSD

가

-

가

- FreeBSD (3).
- / (8).

11.2

11.2.1

11.2.1.1

disklabel(8) sysinstall(8)

가 /usr

: root, swap, /var, /usr.

```

FreeBSD Disklabel Editor
Disk: ad1      Partition name: ad1s1      Free: 0 blocks (0MB)
Part  Mount      Size  Newfs  Part  Mount
----  -
ad1s1e /             500MB UFS    N
ad1s1b swap          512MB SWAP   N
ad1s1a /tmp          500MB UFS+S  N
ad1s1f /var          2000MB UFS+S  N
ad1s1g /usr          5000MB UFS+S  N
ad1s1h /home        11027MB UFS+S  N
    
```

/var . /var ,

GByte /var/tmp

/usr port(7) () ()

가 가 2GB

가 .

Note: sysinstall(8) *Auto-defaults* 가 /var /

```

FreeBSD Disklabel Editor
Disk: ad1 Partition name: adis1 Free: 0 blocks
Part      Mount      Size  Newfs  Part      Mount
-----  -
adis1a    /           128MB UFS     Y
adis1b    swap        1014MB SWAP
adis1e    /var        256MB  UFS+S  Y
adis1f    /tmp        256MB  UFS+S  Y
adis1g    /usr        17885MB UFS+S  Y
    
```

11.2.1.2

가 (RAM)
 128MByte 가 256MByte 가
 가 256MByte
 VM
 가
 가
 가
 가
 SCSI 가(IDE)
 (4)
 가
 가 4
 (stripe)
 가
 가

11.2.1.3 가?

가 가
 가
 root /usr 가

defaultrouter="10.1.1.254"

saver="daemon"

blanktime="100"

rc.conf.site rsync

rc.conf

sysinstall(8) make world rc.conf

11.4

가

가

/usr/local/etc

가

가

.default 가

.default

/usr/local/etc/apache

:

-rw-r--r--	1	root	wheel	2184	May 20	1998	access.conf
-rw-r--r--	1	root	wheel	2184	May 20	1998	access.conf.default
-rw-r--r--	1	root	wheel	9555	May 20	1998	httpd.conf
-rw-r--r--	1	root	wheel	9555	May 20	1998	httpd.conf.default
-rw-r--r--	1	root	wheel	12205	May 20	1998	magic
-rw-r--r--	1	root	wheel	12205	May 20	1998	magic.default
-rw-r--r--	1	root	wheel	2700	May 20	1998	mime.types
-rw-r--r--	1	root	wheel	2700	May 20	1998	mime.types.default

-rw-r--r--	1	root	wheel	7980	May 20	1998	srm.conf
-rw-r--r--	1	root	wheel	7933	May 20	1998	srm.conf.default

srm.conf . Apache

11.5

```

가
가
start
stop /usr/local/etc/rc.d
root
/usr/local/etc/rc.d :
```

```

#!/bin/sh
echo -n ' FooBar'

case "$1" in
start)
    /usr/local/bin/foobar
    ;;
stop)
    kill -9 `cat /var/run/foobar.pid`
    ;;
*)
    echo "Usage: `basename $0` {start|stop}" >&2
    exit 64
    ;;
esac
```

```
exit 0
```

```
FreeBSD          root          sh          가
/usr/local/etc/rc.d          .          start
  stop          .          가
          /usr/local/etc/rc.d  FooBar.sh          가
          .          chmod(1)          :
```

```
# chmod 755 FooBar.sh
```

```
          inetd(8)가          .
          (POP  IMAP  )          .          /etc/inetd.conf
          .          inetd(8)          .
가          /etc/rc.conf          .
          /etc/rc.local          . FreeBSD 3.1
/etc/rc.local          가
          . rc.local          가
          가          .
```

Note: /etc/rc.conf

```
          /usr/local/etc/rc.d          .
          cron(8)          . cron(8)
crontab          root 가
          .
cron(8)          @reboot
          cron(8)          .
```

11.6 cron

```
FreeBSD  가          cron(8)  . cron
          /etc/crontab          . cron          crontab
```


/varcron/tabs . crontab cron

/etc/crontab :

```

# /etc/crontab - root's crontab for FreeBSD
#
# $FreeBSD: src/etc/crontab,v 1.32 2002/11/22 16:13:39 tom Exp $
# ❶
#
SHELL=/bin/sh
PATH=/etc:/bin:/sbin:/usr/bin:/usr/sbin ❷
HOME=/var/log
#
#
#minute hour   mday   month   wday   who command ❸
#
*/5 * * * * root   /usr/libexec/atrun ❹

```

❶ FreeBSD #

❷ . equals(=) SHELL,
PATH HOME
cron sh . PATH 가
가 . HOME
cron

❸ 7 . minute, hour, mday,
month, wday, who command
minute . hour minute
, mday , month hour minute . Wday
24

```

/etc/crontab
가
command
4
*/5 * * * *
5 atrun root
atrun(8) atrun
;
" " 가

```

가 /etc/crontab crontab
6 /etc/crontab crontab

11.6.1 crontab

```

crontab crontab
:
# crontab crontab
crontab crontab -/
crontab crontab -e
crontab

```

11.7 FreeBSD 5.X rc

```
FreeBSD                                NetBSD rc.d                                .   가 /etc/rc.d
                                        가                                .   start, stop
restart                                .   sshd(8)
```

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

```
rc.conf(5)
```

```
/etc/rc.conf   가   :
```

```
natd_enable="YES"
```

```
natd_enable="NO"                                NO   YES   . rc
```

```
rc.d / /
/etc/rc.conf start, stop restart
```

```
/etc/rc.conf sshd_enable YES sshd restart
```

```
. /etc/rc.conf start, stop restart
```

```
"force" /etc/rc.conf sshd
```

```
:
```

```
# /etc/rc.d/sshd forcerestart
```

```
가 /etc/rc.conf rcvar rc.d
```

```
sshd 가 /etc/rc.conf
```

```
:
```

```
# /etc/rc.d/sshd rcvar
```

```
# sshd
```

```
$sshd_enable=YES
```

```
Note: (# sshd) sshd ; root
```

```
가 status sshd 가
```

/etc/rc.d/sshd status

sshd is running as pid 433.

reload 가 . 가
SIGHUP

rcNG

bgfsck . 가

Starting background file system checks in 60 seconds.

RPC rpcbind 가 . NIS

. rcorder(8)

가 :

- *PROVIDE:*
- *REQUIRE:*
- *BEFORE:*
- KEYWORD: FreeBSD NetBSD. *BSD

(runlevels)

FreeBSD 5.X rc.d 가 rc(8) rc.subr(8)

11.8

가 FreeBSD 가

11.8.1

FreeBSD , PCI ISA 가 가

가 . usr/src/sys/i386/conf/LINT

/ 가

가

가 가

가 가

GENERIC

:

```
dc0: <82c169 PNIC 10/100BaseTX> port 0xa000-0xa0ff mem 0xd3800000-0xd38000ff irq 15 at device 11.0 on pci0
dc0: Ethernet address: 00:a0:cc:da:da:da
miibus0: <MII bus> on dc0
ukphy0: <Generic IEEE 802.3u media interface> on miibus0
ukphy0: 10baseT, 10baseT-FDX, 100baseTX, 100baseTX-FDX, auto
dc1: <82c169 PNIC 10/100BaseTX> port 0x9800-0x98ff mem 0xd3000000-0xd30000ff irq 11 at device 12.0 on pci0
dc1: Ethernet address: 00:a0:cc:da:da:db
miibus1: <MII bus> on dc1
```

```
ukphy1: <Generic IEEE 802.3u media interface> on miibus1
ukphy1: 10baseT, 10baseT-FDX, 100baseTX, 100baseTX-FDX, auto
```

```

                                dc(4)                                가
                                                                .   가           가
                                                                .   가           가
                                kldload(8)
                                (   ISA   ed(4)
                                가
                                가                               /usr/src/sys/i386/conf/LINT
                                                                8
                                가   (GENERIC)

```

11.8.2

가 . 가
sysinstall

```

% ifconfig
① dc0: flags=8843<①UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    ②inet 192.168.1.3 ③netmask 0xfffff00 ④broadcast 192.168.1.255
    ⑤ether 00:a0:cc:da:da:da
    ⑥media: Ethernet autoselect (100baseTX <full-duplex>)
    ⑦status: active
② dc1: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    inet 10.0.0.1 netmask 0xfffff00 broadcast 10.0.0.255
    ether 00:a0:cc:da:da:db
    media: Ethernet 10baseT/UTP
    status: no carrier
③ lp0: flags=8810<POINTOPOINT,SIMPLEX,MULTICAST> mtu 1500
④ lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
    inet 127.0.0.1 netmask 0xff000000

```

```
⑤ tun0: flags=8010<POINTOPOINT,MULTICAST> mtu 1500
```

Note: FreeBSD ifconfig(8) *-a* ifconfig(8)
IPv6 (*inet6*)

가 :

dc0:

dc1:

lp0:

lo0:

tun0: **ppp** 가

FreeBSD 가

sis2 sis(4) 3

dc0 up . .

① UP 가 .

② (*inet*) (192.168.1.3) 가 .

③ (*netmask*; 0xfffff00 255.255.255.0) 가

④ 가 (192.168.1.255).

⑤ (ether) MAC 00:a0:cc:da:da:da .

⑥ (*media: Ethernet autoselect*)

(10baseTX <full-duplex>). dc1 10baseT/UTP

⑦ (status) active . dc1 status: no carrier

ifconfig(8) 가

dc0: flags=8843<BROADCAST,SIMPLEX,MULTICAST> mtu 1500
ether 00:a0:cc:da:da:da

root ifconfig(8)
/etc/rc.conf

가

/etc/rc.conf 가

가 :

ifconfig_dc0="inet 192.168.1.3 netmask 255.255.255.0"
ifconfig_dc1="inet 10.0.0.1 netmask 255.255.255.0 media 10baseT/UTP"

dc0, dc1

ifconfig(8) /etc/rc.conf

rc.conf(5)

가 /etc/rc.conf

LAN IP 가 /etc/hosts 가

hosts(5) /usr/share/examples/etc/hosts

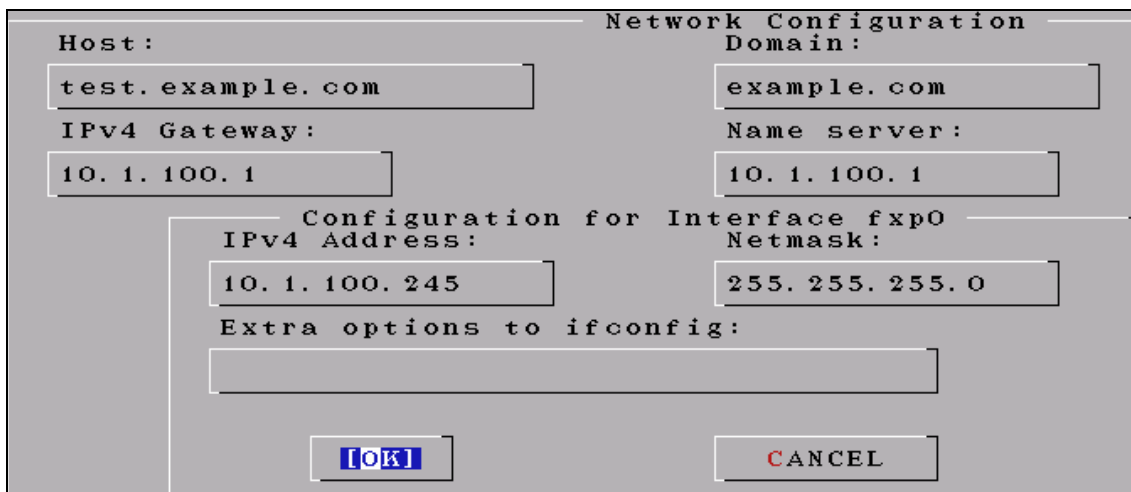
FreeBSD sysinstall

/stand/sysinstall

Configure → NetWorkings → Interfaces

Interfaces

FreeBSD



Host: test.example.com Domain: example.com
IPv4 Gateway: 10.1.100.1 Name server: 10.1.100.1
Configuration for Interface fxp0
IPv4 Address: 10.1.100.245 Netmask: 255.255.255.0
Extra options to ifconfig:
[OK] CANCEL

11.8.3

/etc/rc.conf

11.8.3.1

가

가

LAN

```
% ping -c5 192.168.1.3
```

```
PING 192.168.1.3 (192.168.1.3): 56 data bytes
```

```
64 bytes from 192.168.1.3: icmp_seq=0 ttl=64 time=0.082 ms
```

```
64 bytes from 192.168.1.3: icmp_seq=1 ttl=64 time=0.074 ms
```

```
64 bytes from 192.168.1.3: icmp_seq=2 ttl=64 time=0.076 ms
```

```
64 bytes from 192.168.1.3: icmp_seq=3 ttl=64 time=0.108 ms
```

```
64 bytes from 192.168.1.3: icmp_seq=4 ttl=64 time=0.076 ms

- - - 192.168.1.3 ping statistics - - -
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max/stddev = 0.074/0.083/0.108/0.013 ms
```

LAN :

```
% ping -c5 192.168.1.2
PING 192.168.1.2 (192.168.1.2): 56 data bytes
64 bytes from 192.168.1.2: icmp_seq=0 ttl=64 time=0.726 ms
64 bytes from 192.168.1.2: icmp_seq=1 ttl=64 time=0.766 ms
64 bytes from 192.168.1.2: icmp_seq=2 ttl=64 time=0.700 ms
64 bytes from 192.168.1.2: icmp_seq=3 ttl=64 time=0.747 ms
64 bytes from 192.168.1.2: icmp_seq=4 ttl=64 time=0.704 ms

- - - 192.168.1.2 ping statistics - - -
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max/stddev = 0.700/0.729/0.766/0.025 ms
```

```
/etc/hosts          192.168.1.2
```

11.8.3.2

```
가? 가? FreeBSD 가 가?
. FreeBSD STABLE

가 tuning(7)

"device timeouts"
```

가

"watchdog timeout"

PCI

(

PCI

0).

가

"No route to host"

가

`netstat -rn`

가

가

24

"ping: sendto: Permission denied"

ipfw 가

ping

14.8

가

autoselect

tuning(7)

11.9 가

FreeBSD

가

"

"

가

"alias"

가

/etc/rc.conf

가

fxp0

:

```
ifconfig_fxp0_alias0="inet xxx.xxx.xxx.xxx netmask xxx.xxx.xxx.xxx"
```

```

alias0 ( _alias1, _alias2
).
.
가
.
1 가
.
fxp0 . 10.1.1.0
255.255.255.0 가 202.0.75.15 255.255.255.240 가
. 10.1.1.1 10.1.1.5 202.0.75.17
202.0.75.20 IP
.
:
```

```

ifconfig_fxp0="inet 10.1.1.1 netmask 255.255.255.0"
ifconfig_fxp0_alias0="inet 10.1.1.2 netmask 255.255.255.255"
ifconfig_fxp0_alias1="inet 10.1.1.3 netmask 255.255.255.255"
ifconfig_fxp0_alias2="inet 10.1.1.4 netmask 255.255.255.255"
ifconfig_fxp0_alias3="inet 10.1.1.5 netmask 255.255.255.255"
ifconfig_fxp0_alias4="inet 202.0.75.17 netmask 255.255.255.240"
ifconfig_fxp0_alias5="inet 202.0.75.18 netmask 255.255.255.255"
ifconfig_fxp0_alias6="inet 202.0.75.19 netmask 255.255.255.255"
ifconfig_fxp0_alias7="inet 202.0.75.20 netmask 255.255.255.255"
```

11.10

11.10.1 /etc

가 가 :

```
/etc
```

```
;
```

/etc/defaults	
/etc/mail	가 sendmail(8) MTA
/etc/ppp	ppp
/etc/namedb	named(8) . named.conf zone
/usr/local/etc	가 .
/usr/local/etc/rc.d	start/stop
/var/db	,

11.10.2 Hostnames

11.10.2.1 /etc/resolve.conf

/etc/resolv.conf FreeBSD 가 (DNS)

resolv.conf 가 .

nameserver

가 IP . 3

search

domain

resolv.conf:

search example.com

```
nameserver 147.11.1.11
nameserver 147.11.100.30
```

Note: *search domain*

DHCP dhclient(8) DHCP resolv.conf

11.10.2.2 /etc/hosts

/etc/hosts

```
IP                    DNS    NIS                    . LAN                   
named(8)                    hosts
가                    /etc/hosts
```

```
# $FreeBSD$
#
# Host Database
# This file should contain the addresses and aliases
# for local hosts that share this file.
# 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 myname.my.domain
127.0.0.1              localhost localhost.my.domain myname.my.domain
#
# 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. PLEASE PLEASE PLEASE do not try
# to invent your own network numbers but instead get one from your
# network provider (if any) or from the Internet Registry (ftp to
# rs.internic.net, directory `/templates').
#
```

/etc/hosts 가 :

[Internet address] [official hostname] [alias1] [alias2] ...

10.0.0.1 myRealHostname.example.com myRealHostname foobar1 foobar2

hosts(5)

11.10.3 log

11.10.3.1 syslog.conf

syslog.conf syslogd(8) syslog

```
# $FreeBSD$
#
# Spaces ARE valid field separators in this file. However,
# other *nix-like systems still insist on using tabs as field
# separators. If you are sharing this file between systems, you
```

```
#      may want to use only tabs as field separators here.
#      Consult the syslog.conf(5) manual page.
*.err;kern.debug;auth.notice;mail.crit      /dev/console
*.notice;kern.debug;lpr.info;mail.crit;news.err /var/log/messages
security.*                                   /var/log/security
mail.info                                    /var/log/maillog
lpr.info                                     /var/log/lpd-errs
cron.*                                       /var/log/cron
*.err                                         root
*.notice;news.err                           root
*.alert                                      root
*.emerg                                      *
# uncomment this to log all writes to /dev/console to /var/log/console.log
#console.info                               /var/log/console.log
# uncomment this to enable logging of all log messages to /var/log/all.log
#*. *                                        /var/log/all.log
# uncomment this to enable logging to a remote log host named loghost
#*. *                                        @loghost
# uncomment these if you're running inn
# news.crit                                  /var/log/news/news.crit
# news.err                                   /var/log/news/news.err
# news.notice                               /var/log/news/news.notice
!startslip
*. *                                         /var/log/slip.log
!ppp
*. *                                         /var/log/ppp.log
```

syslog.conf(5)

11.10.3.2 newsyslog.conf

```
newsyslog.conf      cron(8)      newsyslog(8)
    . newsyslog(8)      . logfile
logfile.0           logfile.0   logfile.1      .      log
    gzip(1)           logfile.0.gz, logfile.1.gz
```



```
kern.logsigexit=0      # Do not log fatal signal exits (e.g. sig 11)
compat.linux.osname=FreeBSD
compat.linux.osrelease=4.3-STABLE
```

11.11 sysctl

sysctl(8) FreeBSD TCP/IP
가
500 가 sysctl(8)

sysctl(8) 가

% **sysctl -a**

kern.maxproc :

% **sysctl kern.maxproc**

kern.maxproc: 1044

variable=value :

sysctl kern.maxfiles=5000

kern.maxfiles: 2088 -> 5000

sysctl , (Booleans) (1
yes 0 no).

11.11.1 sysctl(8)

sysctl(8)

가

cardbus(4)

:

cbb0: Could not map register memory

device_probe_and_attach: cbb0 attach returned 12

sysctl(8)

가

/boot/loader.conf.local sysctl(8) "OLDs"

/boot/defaults/loader.conf

hw.pci.allow_unsupported_io_range=1

cardbus(4)

11.12

1.12.1 Sysctl

11.12.1.1 *vfs.vmiodirenable*

vfs.vmiodirenable sysctl 0 (off) 1 (on) ; 1

(fragment(1K)

(512 bytes)

가

sysctl 가

VM

(core)

512bytes

(4k).

가

11.12.1.2 *vfs.write_behind*

vfs.write_behind sysctl 1 (on)

가

가

I/O

가

11.12.1.3 *vfs.hirunningspace*

vfs.hirunningspace sysctl I/O

가

4 5 가

(

)

!

가

VM 가 sysctl

FreeBSD 4.3 VM

11.12.1.4 *vm.swap_idle_enabled*

vm.swap_idle_enabled sysctl 가

idle 가

vm.swap_idle_threshold1

vm.swap_idle_threshold2 swapout hysteresis (idle) idle

pre-page

VM

가

11.12.1.5 *hw.ata.wc*

FreeBSD 4.3

IDE

IDE

가

IDE

가

IDE

IDE

가

FreeBSD

hw.ata.wc sysctl

IDE

1

가

ata(4)

11.12.1.6 *SCSI_DELAY* (*kern.cam.scsi_delay*)

SCSI_DELAY

15+

5

() FreeBSD

(5.0+) *kern.cam.scsi_delay*

seconds 가 *milliseconds*

11.12.2 Soft Updates

tunefs(8)

가

:


```

.          30    60
.          (    inode)
.
"    "    . fsck(8)
. mount -f
.
fsck(8)    .          fsck    :
.          . fsck
.
.          fsck    fsck 가
.          (
fsck    ).
.
.          ( :
logging    )    .          (
.          )    .          가
가    .
.          fsck
.          가 0
.          가
.          가
가

```

11.13

11.13.1 /

11.13.1.1 *kern.maxfiles*

kern.maxfiles 가 . 가 dmesg
(descriptor) 가 . 가
file: table is full

fifo (descriptor)

가

Kern.maxfiles

MAXUSERS

Kern.maxfiles *MAXUSERS*

256

Note: FreeBSD 4.5

*MAXUSERS*가 0

가 RAM

11.13.1.2 *kern.ipc.somaxconn*

kern.ipc.somaxconn sysctl

TCP

listen

128 가

1024

listen (: sendmail(8) Apache)

가

가

listen

(DOS)

11.13.2

NMBCLUSTERS

Mbufs

Mbufs

FreeBSD

2K

1024

2Mbytes

1000

가

16k

16k 가

32MB

가

가

$2 \times 32\text{MB} / 2\text{KB} = 64\text{MB} / 2\text{KB} = 32768$

4096

32768

가

가

. netstat(1) -m .

kern.ipc.nmbclusters

FreeBSD *NMBCLUSTERS* config(8)

sendfile(2) 가 *NSFBUFS*
/boot/loader.conf (loader(8)) sendfile(2)
가 "sbufa"

. sysctl *kern.ipc.nsfbufs*
kern.maxusers

: non-blocking non-blocking
sendfile(2) sendfile(2)가 *struct sf_buf*
blocking

11.13.2.1 *net.inet.ip.porrange.**

*net.inet.ip.porrange.** sysctl TCP UDP
. 3 가 가 : , , .
net.inet.ip.porrange.first *net.inet.ip.porrange.last* 가 1024 5000
가 proxy
가 가
net.inet.ip.porrange.last 가 10000, 20000 30000
가
()
net.inet.ip.porrange.first

11.13.2.2 TCP

TCP **NetBSD** TCP/Vegas
net.inet.tcp.inflight_enable sysctl 1

가 WAN ()
)
 .
 net.inet.tcp.inflight_debug 0 ()
) net.inet.tcp.inflight_min 6144

Round Trip Times
 (/) 가 ()
) 가 .

net.inet.tcp.inflight_stab
 20 2 가 . 가
 ()
 15, 10 5 ;
 net.inet.tcp.inflight_min (3500)

11.14 가

가
 가 가 3가 :
 가, NFS 가

11.14.1

가 가 가 .

(11.2) (11.2.1.2)

11.14.2 NFS

NFS 가
NFS FreeBSD 4.X . 4.0-RELEASE
FreeBSD NFS
가 NFS

11.14.3

64MB
/usr/swap0

[]

1. FreeBSD 4.X

```
vnnode
GENERIC
pseudo-device vn 1 #Vnode driver (turns a file into a device)

vn-device :
# cd /dev
# sh MAKEDEV vn0

(/usr/swap0):
# dd if=/dev/zero of=/usr/swap0 bs=1024k count=64
```

```
(/usr/swap0):  
  
# chmod 0600 /usr/swap0  
  
/etc/rc.conf                               :  
  
swapfile="/usr/swap0" # Set to name of swapfile if aux swapfile desired.  
  
:  
  
# vnconfig -e /dev/vn0b /usr/swap0 swap
```

2. FreeBSD 5.X

```
(md(4))  
  
GENERIC  
  
device md # Memory "disks"  
  
(/usr/swap0):  
  
# dd if=/dev/zero of=/usr/swap0 bs=1024k count=64  
  
(/usr/swap0):  
  
# chmod 0600 /usr/swap0  
  
/etc/rc.conf                               :  
  
swapfile="/usr/swap0" # Set to name of swapfile if aux swapfile desired.  
  
:  
  
# mdconfig -a -t vnode -f /usr/swap0 -u 0 && swapon /dev/md0
```

11.15

가 . ACPI

가 BIOS(PNPBIOS) Advanced Power Management(APM)

가 BIOS 가 . 가 가 가

()

FreeBSD ACPI

. ACPI FreeBSD 5.X

. FreeBSD 4.9 *device*

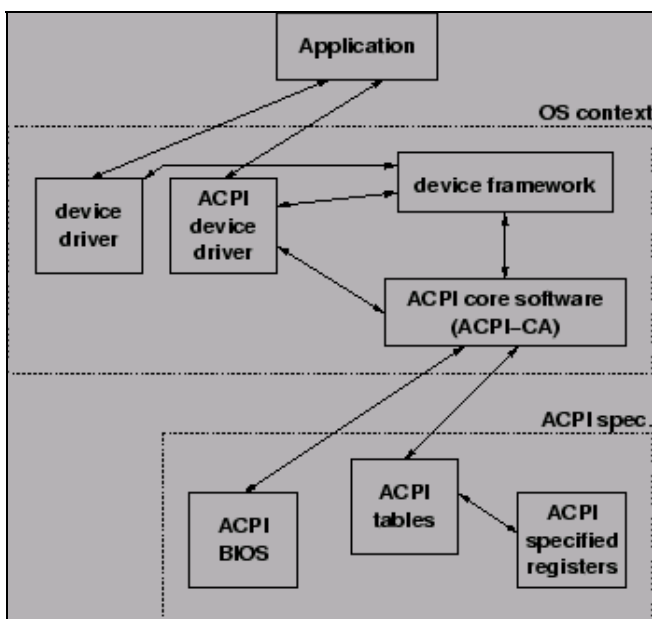
acpi 가 ACPI

11.15.1 ACPI 가?

(ACPI)

*Operating System-directed configuration and Power Management*가
(OS)

ACPI



ACPI (FreeBSD 4.X APM)
ACPI APM ()

11.15.2 (APM)

(APM) . APM BIOS
. OS APM
APM
APM 4 가 . BIOS 가()
OS 가 APM BIOS
idle-time BIOS OS
. APM BIOS OS
가 ROM APM BIOS
; 가
APM BIOS ()
가 . APM BIOS

BIOS(PNPBIOS) . PNPBIOS 16
OS PNPBIOS 16

FreeBSD APM apm(4)

11.15.3 ACPI

acpi.ko loader(8)
acpi.ko
ACPI
ACPI 가
. ACPI acpicnf(8)
. ACPI acpicnf(8)

ACPI dmesg(8) ACPI 가

Note: ACPI APM
가

ACPI acpiconf(8) -s 1-5
1 5 soft-off :

halt -p

acpiconf(8)

11.16 FreeBSD ACPI

ACPI , BIOS 가 . ACPI
FreeBSD
가 Intel ACPI-CA 가 .
FreeBSD ACPI

11.16.1

Note: 가 BIOS

freebsd-acpi@FreeBSD.org

•

가

- “boot -v” dmesg
- ACPI 가 ACPI “boot -v” dmesg
- “sysctl hw.acpi”
- ASL URL. ASL
ASL :

acpidump -t -d > \$NAME-\$SYSTEM.asl

(\$NAME \$SYSTEM / :
njl-Fooco6000.asl)

freebsd - current
acpi 가
send-pr(1) PR
PR
PR
acpi
PR

11.16.2

ACPI ia32 (x86), ia64 (Itanium) adm64(AMD)
CPU , , ,
가
가
ACPI 가 BIOS APIC (SMP
) , fixed table (: FADT)

가 (DSDT)

ACPI fixed table , ,
ACPI FreeBSD Intel NetBSD
(ACPI-CA) ACPI-CA
src/sys/contrib/dev/acpica FreeBSD ACPI-CA 가
(glue) src/sys/dev/acpica/Osd ACPI
src/sys/dev/acpica

11.16.3

ACPI 가

11.16.3.1 /

ACPI RAM(STR) S1-S3 , S4
(STD)
"soft off" S5 가 S4 가 S4 BIOS
BIOS S4 OS 가
sysctl hw.acpi Thinkpad
가 :

```
hw.acpi.supported_sleep_state: S3 S4 S5
hw.acpi.s4bios: 0
```

S3, S4 OS S5 acpicnf -s
s4bios 가 (1) S4 OS S4 BIOS
/ S1
S2 가
가 S1 S3 가 STR

```

. 가
/ 가
acpi
가 . 가 가
.nvidia.ko, X11 USB
가
/
/etc/rc.suspend /etc/rc.resume 가
가
hw.acpi.reset_video 0 . hw.acpi.sleep_delay

```

```

/
ACPI FreeBSD
가 . ACPI
( : , ATA )
freebsd - current
printf(3)
ACPI APM . / 가 APM
APM (2000 )
ACPI ACPI
BIOS 가

```

11.16.3.2 ()

```

BIOS 가 , APIC (MADT)
SCI 가
vmstat -i "acpi0" 가
가 가
DDB ( CTRL + ALT + ESC) show interrupts

```

가 loader.conf *hint.apic.0.disabled="1"* APIC

11.16.3.3

ACPI 가 . options
(가) . tr DDB
DDB dump(8) 5 5
ACPI . *debug.acpi.disable*
ACPI . acpi(4)

11.16.3.4

loader.conf(5) *hw.acpi.disable_on_poweroff="0"*
ACPI
"1" ()

11.16.3.5

ACPI 가(docking station , 가)
ACPI
가

11.16.4 ASL, acpidump IASL

BIOS 가 (가)

ACPI-1287: *** Error: Method execution failed [_SB_.PCI0.LPC0.FIGD._STA] (Node 0xc3f6d160), AE_NOT_FOUND

```

BIOS
    가
        가 . AML
        . AML DSDT
acpidump(8) . -f (fixed tables
) 가
    가
        가
            . ASL
                ACPI 가
                    :

```

iasl your.asl

11.16.5 ASL

```

    ACPI 가
        BIOS 가
Microsoft (acpi.sys acpiec.sys)
    ACPI BIOS ASL
Microsoft 가
    FreeBSD 가 ASL
가
    가 ACPI-CA 가
ASL diff(1)

```

11.16.5.1 _OS

AML

```
FreeBSD OS 가
/boot/loader.conf hw.acpi.osname="Windows 2001" ASL
```

11.16.5.2 Return

```
FreeBSD ACPI-CA 가
Return 가
iasl ASL -f
```

11.16.5.3 AML

```
your.asl :
# iasl your.asl
가 -f 가 AML
( : Return ) 가
DSDT.aml iasl /boot/loader.conf
BIOS ( ) :
```

```
acpi_dsdt_load="YES"
acpi_dsdt_name="/boot/DSDT.aml"
```

```
DSDT.aml /boot
```

11.16.6 ACPI

ACPI
 “layers” ACPI-CA
 (ACPI_ALL_COMPONENTS) ACPI (ACPI_ALL_DRIVERS)
 “level” (bitmask)
 가
 acpi(4)

ACPI 가
options ACPI_DEBUG 가
 /etc/make.conf *options ACPI_DEBUG=1* 가
 acpi.ko :

```
# cd /sys/modules/acpi/acpi
&& make clean &&
make ACPI_DEBUG=1
```

/boot/kernel acpi.ko loader.conf 가
 ACPI-CA ACPI (CPUm LID)

```
debug.acpi.layer="ACPI_ALL_COMPONENTS ACPI_ALL_DRIVERS"
debug.acpi.level="ACPI_LV_ERROR"
```

loader.conf sysctl
 sysctls loader.conf

11.16.7

ACPI :

- ACPI freebsd-acpi@FreeBSD.org
- ACPI <http://lists.freebsd.org/pipermail/freebsd-acpi/>

- ACPI . <http://home.jp.FreeBSD.org/mail-list/acpi-jp/>
- ACPI 2.0 . <http://acpi.info/spec.htm/>
- FreeBSD : acpi(4), acpi_thermal(4), acpidump(8), iasl(8), acpidb(8)
- DSDT (http://www.cpqlinux.com/acpi-howto.html#fix_broken_dsdt). (Compaq)