FreeBSD

Korea FreeBSD Users Group – http://www.kr.FreeBSD.org/

Chapter 11 :

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        : 2004   8   7

        : 2005   3   8

        : 1.0

FreeBSD Documentation Project   FreeBSD Handbook   2004   8

7   . FreeBSD Handbook   ,

       , CVS Repository

      .

    ,   .

           .   KFUG(Korea FreeBSD Users Group)

     ,   KFUG

    .

"FreeBSD Handbook"   "FreeBSD Documentation Project"   ,   "   FreeBSD

"   "   (Young-oak Lee)"   .

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KFUG   ,   .
     .

III

FreeBSD   FreeBSD   .

                                                                    .

                                                        .

FreeBSD   .

11

11.1

FreeBSD   .

                                        .   FreeBSD

                        FreeBSD   .

                                                                    :

-

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

-

-

- /etc

- sysctl   FreeBSD

-

KFUG   ,   .
                                            .

:

- FreeBSD   (3).

-         /   (8).

11.2

11.2.1

11.2.1.1

disklabel(8)   sysinstall(8)

.

/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
ad1s1a        /tmp             500MB UFS+S   N
ad1s1f        /var            2000MB UFS+S   N
ad1s1g        /usr            5000MB UFS+S   N
ad1s1h        /home          11027MB UFS+S   N
```

[11-1.bmp]

/var   . /var   ,

      .

             .   GByte   /var/tmp

                                .

/usr   port(7)   (   )   (   )

KFUG   ,   .
                                                        .

.   .   2GB
.

.

.

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

```
                                    FreeBSD Disklabel Editor
Disk: ad1           Partition name: ad1s1      Free: 0 blocks

Part        Mount              Size  Newfs     Part          Mount
----        -----              ----  -----     ----          -----
ad1s1a      /                 128MB  UFS     Y
ad1s1b      swap             1014MB  SWAP
ad1s1e      /var              256MB  UFS+S   Y
ad1s1f      /tmp              256MB  UFS+S   Y
ad1s1g      /usr            17885MB  UFS+S   Y
```

[11-2.bmp]

11.2.1.2

                                                        (RAM)
.   128MByte   256MByte
.   . 256MByte
                                    . VM
                                                                            .

.

        SCSI   (IDE   )
                                                    (4   ).
                        .

                                                4   .

                                            (stripe)   .
                        .
                        .

     KFUG   ,   .

11.2.1.3   ?

.

.   root   /usr
.   /var   /var/tmp   .

.

I/O   .   I/O
/var
.   .

root   .

11.3

/etc/rc.conf   .

.   rc*
.

/etc/defaults/rc.conf   rc.conf   .
/etc   .
rc.conf   .

.

/etc/rc.conf.site
/etc/rc.conf   .

rc.conf   sh(1)   .   .

- ● rc.conf:

. rc.conf.site
hostname="node15.example.com"
network_interfaces="fxp0 lo0"
ifconfig_fxp0="inet 10.1.1.1"

● rc.conf.site:

defaultrouter="10.1.1.254"
saver="daemon"
blanktime="100"

rc.conf.site   rsync
rc.conf   .

sysinstall(8)   make world   rc.conf
.

11.4

.

.

/usr/local/etc   .
.

.

.default   .   .default
.

/usr/local/etc/apache   :

- rw- r- - r- -   1 root wheel   2184 May 20 1998 access.conf

KFUG
.

- 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

.

.

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*
/usr/local/etc/rc.d   .   *start*
  stop   .
                    /usr/local/etc/rc.d   FooBar.sh
        .   chmod(1)   :

chmod 755 *FooBar.sh*

                                                inetd(8)   .
            (POP   IMAP   )   .   /etc/inetd.conf
                    .   inetd(8)   .

                            /etc/rc.conf   .
                            /etc/rc.local   . FreeBSD 3.1
    /etc/rc.local
                    . rc.local   .
                                                            .

        Note: /etc/rc.conf   .
                            /usr/local/etc/rc.d   .

                        cron(8)   . cron(8)
crontab   root
                    .

cron(8)   *@reboot*
            .   cron(8)   .

11.6 cron

FreeBSD   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

. HOME

KFUG   ,   .
.

cron .

❸ 7 . *minute, hour, mday,*
month, wday, who command .
minute . *hour* *minute*
, *mday* , *month* *hour* *minute* . *Wday*
. 24
. /etc/crontab *who* .
crontab
. *command* .
.

❹ . *
*/5 . * " "
. atrun root
5 . atrun
atrun(8) .

;
" " .

crontab .
6 /etc/crontab . crontab
.

11.6.1 crontab

crontab crontab .
:

crontab crontab

corntab crontab –*l* .

crontab crontab - *e*

KFUG , .

.   .

crontab   .

11.7 FreeBSD 5.X   rc

FreeBSD   NetBSD rc.d   .   /etc/rc.d

                                                        .   *start, stop*

  restart   .   sshd(8)

                                        :

/etc/rc.d/sshd restart

                                        .   rc.conf(5)

              .

          /etc/rc.conf   :

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

              /etc/rc.conf   *rcvar*   rc.d

                        .   sshd   /etc/rc.conf

                                        :

/etc/rc.d/sshd rcvar

sshd

$sshd_enable=YES

Note: (# *sshd*) sshd   ; root   .

status   .   sshd
                              :

/etc/rc.d/sshd status

sshd is running as pid 433.

reload   .
                          .   *SIGHUP*   .

rcNG   .

bgfsck   .
          :

Starting background file system checks in 60 seconds.

                                                                                                        .

                                                                                          .   NIS

RPC   rpcbind   .

. rcorder(8)

                                                                                          .
                              :

● *PROVIDE*:

● *REQUIRE*:   .
    .

● *BEFORE*:   .

- KEYWORD: FreeBSD   NetBSD.   *BSD   .

(runlevels)
.

FreeBSD 5.X   rc.d   rc(8)   rc.subr(8)
.

11.8

.
FreeBSD   .

11.8.1

,   PCI   ISA   .
FreeBSD   PCI   ISA   .
.

. usr/src/sys/i386/conf/LINT

    /   .
.
.

.

GENERIC
                :

dc0: <82c169 PNIC 10/100BaseTX> port 0xa000-0xa0ff mem 0xd3800000-0xd38
000ff 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 0xd3000000-0xd30
000ff 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)

.

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

11.8.2

.

sysinstall   .

:

```
% ifconfig
① dc0: flags=8843<❶UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 1500
        ❷inet 192.168.1.3 ❸netmask 0xffffff00 ❹broadcast 192.168.1.255
        ❺ether 00:a0:cc:da:da:da
        ❻media: Ethernet autoselect (100baseTX <full-duplex>)
        ❼status: active
② dc1: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 1500
```

> inet 10.0.0.1 netmask 0xffffff00 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*   )
                                        .

                              :

        dc0:

        dc1:

        lp0:

        lo0:

        tun0: **ppp**

FreeBSD

        .   sis2   sis(4)   3   .

            dc0   up   .   .

    ❶   *UP*   .

    ❷   (*inet*)   (192.168.1.3)   .

    ❸   (*netmask*; 0xffffff00   255.255.255.0   )

.

❹   (192.168.1.255).

❺   (ether) MAC   00:a0:cc:da:da:da   .

❻   (*media: Ethernet autoselect*
    (100baseTX <full- duples>)). dc1   *10baseT/UTP*
         .
               .

❼   (*status*)   *active*   . dc1   *status: no carrier*
         .   .

ifconfig(8)   .

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

              root   .   ifconfig(8)
                                                        .   /etc/rc.conf
           .

                  /etc/rc.conf   .
     .   :

```
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)   .
                                                                          .

                  /etc/rc.conf   .

                KFUG   .

LAN   IP   /etc/hosts
                .   hosts(5)   /usr/share/examples/etc/hosts   .

           FreeBSD   **sysinstall**   .

/stand/sysinstall

Configure ➔ NetWorkings ➔ Interfaces   . Interfaces
       FreeBSD   .   .

[11-3.bmp]

11.8.3

/etc/rc.conf   .

11.8.3.1

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

FreeBSD
<rick@rickinc.com>

?

?　　　　　　　　　　　　?　　　　　FreeBSD　　　　　　?
. FreeBSD　　　　　　STABLE

tuning(7)　　　　　　　　　　　　　　　　　　　.

"device timeouts"　　　　　　　　　.

"watchdog timeout"　　　　　　.
.　　　　　　　　　　　PCI　　　　　　.
　PCI　　　　　　　　　　(　　　0).

"No route to host"　　　　　　　　　　　　　　　　　　　　.
. netstat -m

.　　　　　　　　24
.

"ping: sendto: Permission denied"　　　　　　　　　　　　.
ipfw　　　　　　　　　　　　　　　　　　ping
.　　　　14.8　　　.

.　　　*autoselect*

.

tuning(7)　　　　　　　.

11.9

KFUG

FreeBSD

.

.

"   "   "alias"

.   /etc/rc.conf

.

fxp0   :

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

alias0   (_alias1, _alias2

).   .

.

.

1   .

fxp0   . 10.1.1.0

255.255.255.0   202.0.75.15   255.255.255.240

.   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

:

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

11.10.2 Hostnames

11.10.2.1 /etc/resolve.conf

/etc/resolv.conf   FreeBSD   (DNS)
.

resolv.conf   .

nameserver

                                        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
. /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   :

[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
logifle.0   logfile.0   logfile.1   .   log
    gzip(1)   logfile.0.gz, logfile.1.gz   .

newsyslog.conf   log   log
                  . log   /
            .

```
# configuration file for newsyslog
# $FreeBSD$
#
# filename              [owner:group]      mode count size when [ZB] [/pid_file]
[sig_num]
/var/log/cron                              600   3      100   *      Z
/var/log/amd.log                           644   7      100   *      Z
/var/log/kerberos.log                      644   7      100   *      Z
/var/log/lpd-errs                          644   7      100   *      Z
/var/log/maillog                           644   7      *     @T00   Z
/var/log/sendmail.st                       644   10     *     168    B
/var/log/messages                          644   5      100   *      Z
/var/log/all.log                           600   7      *     @T00   Z
/var/log/slip.log                          600   3      100   *      Z
/var/log/ppp.log                           600   3      100   *      Z
/var/log/security                          600   10     100   *      Z
/var/log/wtmp                              644   3      *     @01T05 B
/var/log/daily.log                         640   7      *     @T00   Z
/var/log/weekly.log                        640   5      1     $W6D0  Z
/var/log/monthly.log                       640   12     *     $M1D0  Z
/var/log/console.log                       640   5      100   *      Z
```

                    KFUG   ,   .
                                                    .

newsyslog(8) .

11.10.4 sysctl.conf

sysctl.conf   rc.conf   *variable=value*   .

.

sysctl.conf   FreeBSD
:

```
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

. 500   sysctl(8)
.

sysctl(8)   .

:

% **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) .

cardbus(4)
:

```
cbb0: Could not map register memory

device_probe_and_attach: cbb0 attach returned 12
```

sysctl(8) .
/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

KFUG , .

11.12.1.1 *vfs.vmiodirenable*

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

        .   .

                              (fragment(1K)

(512 bytes)   .

                                                                                .   sysctl

                          VM

              .   (core)   512bytes

                              (4k).

                              .   '

        .   .

                                                                                    .

11.12.1.2 *vfs.write_behind*

vfs.write_benid sysctl   *1* (on)   .

                              .   I/O

                              .

                    .

11.12.1.3 *vfs.hirunningspace*

v vfs.hirunningspace sysctl   I/O

                                        .

          4   5   .   (

)   .

                    !   .

                              VM   sysctl   .

          . FreeBSD 4.3   VM   .

                              KFUG   '   .

こ

11.12.1.4 *vm.swap_idle_enabled*

vm.swap_idle_enabled sysctl

idle   .

.   *vm.swqp_idle_threshold1*

   vm.swap_idle_threshold2   swapout hysteresis   (idle   )   idle

   .   .   pre-page

                        .

                                               VM

            .

11.12.1.5 *hw.ata.wc*

FreeBSD 4.3   IDE   .   IDE

                                    . IDE

   . IDE   IDE

                                                                        .

                                                                 . FreeBSD

                  .

                                .   *hw.ata.wc* sysctl

         . IDE   1

            .   .

                        .

         ata(4)   .

11.12.1.6 *SCSI_DELAY (kern.cam.scsi_delay)*

SCSI_DELAY   .

                        15+   .   *5*

      (   ). FreeBSD   (5.0+) *kern.cam.scsi_delay*

.   *seconds*   *milliseconds*

.

11.12.2 Soft Updates

tunefs(8)   .

:

tunefs -n enable /filesystem
tunefs -n disable /filesystem

tunefs(8)   .

.

   Note: FreeBSD 4.5   newfs(8)   -u

.

.   .

:

(

)   .

.

freeing   .   (root   )

make installworld

.

11.12.2.1

(inodes

)   .

.

.

.

.

.   .

fsck(8)

O   .

.   .   rm –r

(   )

.   inode

.   (tar –x)

.

.   /ext2fs   *BSD ufs

mount –o async   .

.

.

.

.   (

)   .

;

inode   .

(   )   fsck

.   newfs(8)

.

journaling   *dirty region logging*

.

.

.   .

.

(

)   "   "   .

fast

.

KFUG   ,   .

.

FFS   Kirk McKusick   :
                                                          ("   ")
          .

          .

     (
).   "   "
          :
     .   30   60   .
                                   (inode)
          .
     "   "   . fsck(8)
               . mount –f
                                        .
fsck(8)   .   fsck   :
                                             . fsck   .

          .   fsck   fsck
               (
fsck   ).

                                        (:
logging   )   .   (
)   .
          .   .
                                                                      fsck
                                             0
          .   .

          .

11.13   .

11.13.1   /

11.13.1.1 *kern.maxfiles*

kern.maxfiles   .

                (descriptor)   .   dmesg

                                        file: table is full

        .

                                fifo   (descriptor)   .

                        .

Kern.maxfiles   *MAXUSERS*   .
Kern.maxfiles   *MAXUSERS*   .

                                                            .

                                            .   256

                                    .

            Note: FreeBSD 4.5   *MAXUSERS*   *0*

                    RAM   .

11.13.1.2 *kern.ipc.somaxconn*

kern.ipc.somaxconn sysctl   TCP   listen

            .   *128*

            .   1024   .

listen   (: sendmail(8)   **Apache**)

                                    .   listen   (DOS)   .

11.13.2

NMBCLUSTERS   Mbufs

.   Mbufs   FreeBSD   .

2K   1024

2Mbytes   .   .

1000   16k

16k   32MB   .

2x32MB / 2KB = 64MB / 2kB = 32768   .   4096

32768   .

. netstat(1)   *–m*   .

kern.ipc.nmbclusters   .

FreeBSD   *NMBCLUSTERS*   config(8)   .

sendfile(2)   *NSFBUFS*

/boot/loader.conf   (loader(8)   )   sendfile(2)

.   "*sfbufa*"

. sysctl   *kern.ipc.nsfbufs*   .

kern.maxusers   .

:   non-blocking   non-blocking

sendfile(2)   sendfile(2)   *struct sf_buf*

blocking

11.13.2.1 *net.inet.ip.portrange.**

*net.inet.ip.portrange.** sysctl   TCP   UDP

. 3   :   ,   ,   .

net.inet.ip.portrange.first   *net.inet.ip.portrange.last*   1024   5000

.

.   proxy

.

net.inet.ip.portrange.last   . *10000, 20000   30000*

.   .

(   )

.   *net.inet.ip.portrange.first*   .

11.13.2.2 TCP

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

,   WAN   (
)   .
.   *net.inet.tcp.inflight_debug*   *0*   (
)   *net.inet.tcp.inflight_min*   *6144*
.   .

.

                                Round Trip Times   .
                        (/   )   .   (
)   .

net.inet.tcp.inflight_stab   .
20   2   .

                                (   )
.   15, 10   5   ;
                        net.inet.tcp.inflight_min   (3500   )   .
                                .

11.14

.

.   3   :

KFUG   ,   .

, NFS

11.14.1

.

(11.2)   (11.2.1.2   )   .

11.14.2 NFS

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

11.14.3

.   64MB
/usr/swap0   .   .

[   ]

1.   FreeBSD 4.X
vnode   . GENERIC   . pseudo-device   vn 1   # Vnode driver (turns a file into a device)

KFUG

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

. ACPI

.

BIOS(PNPBIOS)   Advanced Power Management(APM)
          BIOS   .
                .

        (   )   .

FreeBSD   ACPI   .
                              . ACPI   FreeBSD 5.X
                        . FreeBSD 4.9   device
acpi   ACPI   .

11.15.1 ACPI   ?

                    (ACPI)

                              .

Operating System- directed configuration and Power Management   .
        (OS)   .
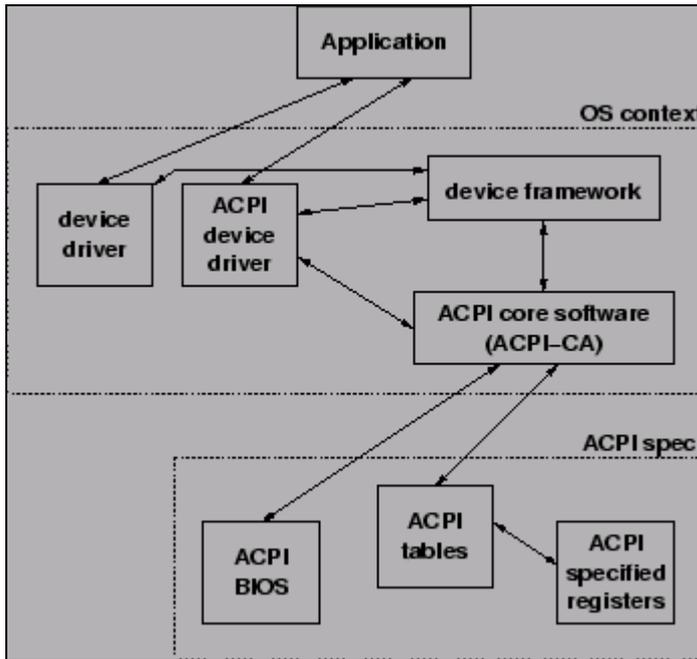
ACPI

[11-4.bmp]

(FreeBSD 4.X   APM   )

ACPI   . ACPI   APM   (   )   .

11.15.2   (APM)

       (APM)   . APM BIOS

                   . OS   APM

    APM   .

APM   4   .   BIOS   (   )

OS   .   APM BIOS

   idle-time   BIOS   OS

        .   APM   BIOS   OS   .

     ROM   APM BIOS

   ;   .

   APM   .   BIOS   (   )

         .   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   .
                                        . ACPI   acpiconf(8)
      .   ACPI   acpiconf(8)   .
    ACPI   dmesg(8)   ACPI
          .

        Note: ACPI   APM   .
                                                              .

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

halt –p

                                        .   acpiconf(8)   .

11.16 FreeBSD ACPI

ACPI   ,   BIOS
                                        . ACPI

FreeBSD

Intel ACPI-CA .

FreeBSD ACPI
.

11.16.1

Note: BIOS
.

freebsd-acpi@FreeBSD.org

-
  . .

- "boot –v" dmesg .

- ACPI 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 .

.   send-pr(1)   PR
        . PR   .
                                    .   PR
                                                            acpi
PR   .   .

11.16.2

ACPI   ia32 (x86), ia64 (Itanium)   adm64(AMD)
        .   CPU   ,   ,   ,   ,
                                                                                    .

                                                    .

ACPI   . BIOS   APIC   (SMP
        ),   fixed table   (: FADT)
                            .   (DSDT)
                    .

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

11.16.3

ACPI   .
                                                    .

11.16.3.1   /

                KFUG   ,   .
                                                    .

ACPI   RAM(STR)   *S1 - S3*   ,   *S4*
                   (*STD*)
"soft off"   *S5*   . *S4*   . *S4* BIOS
                    BIOS   . *S4* OS   .

                                        sysctl *hw.acpi*   .   Thinkpad
                    :

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

          S3, S4 OS   *S5*   **acpiconf –s**   .
s4bios   (1)   *S4* OS   *S4* BIOS   .

     /   *S1*   .
                               .   *S2*
          S1   .   S3   .   STR
                                                    .

          /
               acpi   .

                                                       .
                              . nvidia.ko, X11   USB

               .   /
/etc/rc.suspend   /etc/rc.resume   .
                          .
hw.acpi.reset_video   0   . *hw.acpi.sleep_delay*
          .

                                        /
               ACPI   .   FreeBSD
                                                   . ACPI
                    (:   , ATA   )
     freebsd- current   .
                                                       printf(3)

.

ACPI APM . / APM

APM (2000)

. ACPI ACPI

BIOS .

11.16.3.2 ( )

.

BIOS , APIC (MADT)

SCI .

vmstat *–i* " acpi0"

. .

DDB (**CTRL** + **ALT** + **ESC**) *show interrupts* .

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

.

11.16.3.3

ACPI .

( ) . *options*

DDB dump(8) . *tr* DDB

. 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　　　　　　(docking station　　　　，　　　　　　　　　　　　　　)

　　　　　　　　　　．　　　　　　　　　　　　　ACPI

　　　　　　　　　　　．

　　　　．

11.16.4 ASL, acpidump　　　　　IASL

　　　　　　　BIOS　　　　　　　(　　　　)

　　．　　　　　　　　　　　　　　　　　　　　　：

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

　　BIOS　　　　　　　　　　　　　　　　　　．

　　　　　　　　　　　　　　　　　　　　　　　　　　　AML

　　　　　．AML　　　　　　　　　ASL

　　　．AML　　DSDT　　　　　　　　　．ASL

acpidump(8)　　　　　．−*t*(fixed tables　　　　　)　−*d*(AML　　ASL

　)　　　　　　　．　　　　．

　　　　　　　　　　　　　　　ASL

　．　　　　　　　　　　ACPI

　　．ASL　　　　　　　　：

　　# iasl your.asl

11.16.5 ASL

ACPI   .

BIOS   .

Microsoft   (acpi.sys   acpiec.sys)

       ACPI   BIOS   ASL   .

Microsoft

           FreeBSD   ASL   .

                                              ASL   .

           ACPI-CA

ASL   diff(1)   .

                                                              :

11.16.5.1 _OS

     AML   .

           FreeBSD   OS   .

     /boot/loader.conf   *hw.acpi.osname*="*Windows 2001*"   ASL

                .

11.16.5.2 Return

                                                        . ACPI-CA

           FreeBSD   .

                                        Return   .

   iasl   ASL   −f   .

11.16.5.3   AML

your.asl   :

       # iasl your.asl

-f   AML

.   (: Return   )   .

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)
       .
       .   acpi(4)   .

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

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

/boot/kernel   acpi.ko   loader.conf   .
              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
)

KFUG   ,   .
                                        .