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IPMI

IPMI(Intelligent Platform Management Interface)

가 H/W가 IPMI
 CPU, FAN, , ,) IPMI
 Power) syslog , H/W (,
 IPMI IPMI
 . H/W

IPMI

가 IPMI ,
 2.0 (dmidecode . IPMI
 1.5)

```
$ dmidecode | grep -A10 IPMI
```

Linux (CentOS)

IPMI . freeipmi, ipmitool ipmitool .

```
$ yum install ipmitool OpenIPMI
$ ipmitool lan print 1 # <-- IPMI
Could not open device at /dev/ipmi0 or /dev/ipmi/0 or /dev/ipmidev/0: No such file or directory
```

IPMI .

```
$ service ipmi start
$ lsmod |grep ipmi
ipmi_devintf          7729  2
acpi_ipmi             3745  1 power_meter
ipmi_si               44687  2 acpi_ipmi
ipmi_msghandler      38826  3 ipmi_devintf,acpi_ipmi,ipmi_si
```

FreeBSD

ipmitool .

```
$ pkg install ipmitool
```

```
$ kldload ipmi
$ kldstat | grep ipmi
3      1 0xffffffff80fdc000 f970      ipmi.ko
```

8.1 IPMI (/boot/loader.conf 가 . , FreeBSD
(?) kernel panic , .

```
ipmi_load="YES"
coretemp_load="YES"
```

IPMI

- (System Event Log, SEL)

```
$ ipmitool sel list
  1 | 06/20/2012 | 21:32:52 | Event Logging Disabled #0x72 | Log area
reset/cleared | Asserted
  2 | 07/18/2012 | 14:19:01 | Power Supply #0x63 | Power Supply AC lost |
Asserted
  3 | 07/18/2012 | 14:19:11 | Power Supply #0x74 | Redundancy Lost |
Asserted
... ..
```

- FRU(Field Replaceable Unit) . , , , , .

```
$ ipmitool fru
... ..
FRU Device Description : iDRAC7
Board Mfg Date       : Wed May  2 17:27:00 2012
Board Mfg            : DELL
Board Product        : PowerEdge R620
... ..

FRU Device Description : PS1 (ID 1)
Board Mfg Date       : Mon Jun  4 18:14:00 2012
Board Mfg            : DELL
Board Product        : PWR SPLY,750WP,RDNT,DELTA
... ..

FRU Device Description : PS2 (ID 2)
Board Mfg Date       : Mon Jun  4 18:44:00 2012
Board Mfg            : DELL
Board Product        : PWR SPLY,750WP,RDNT,DELTA
... ..
```

-

```
$ ipmitool sensor
...
FAN MOD 1A RPM | 4320.000 | RPM | ok | na | 1920.000 |
na | na | na | na
FAN MOD 2A RPM | 4440.000 | RPM | ok | na | 1920.000 |
na | na | na | na
FAN MOD 3A RPM | 4320.000 | RPM | ok | na | 1920.000 |
na | na | na | na
...

```

- SDR(Sensor Data Repository)

SDR(Sensor Data Repository) (type temp), Voltage FAN (type voltage), type fan 가 (type batt)

```
$ ipmitool sdr
...
Current 1 | 0.40 Amps | ok
Current 2 | 0.20 Amps | ok
Voltage 1 | 216 Volts | ok
Voltage 2 | 216 Volts | ok
PS Redundancy | 0x00 | ok
...
$ ipmitool sdr type
$ ipmitool sdr type fan
Fan1A RPM | 30h | ok | 7.1 | 2400 RPM
Fan2A RPM | 32h | ok | 7.1 | 2280 RPM
Fan3A RPM | 34h | ok | 7.1 | 2400 RPM
Fan4A RPM | 36h | ok | 7.1 | 2160 RPM
Fan5A RPM | 38h | ok | 7.1 | 2280 RPM
Fan6A RPM | 3Ah | ok | 7.1 | 2280 RPM
Fan Redundancy | 75h | ok | 7.1 | Fully Redundant
...

```

- Power . power ,

```
$ ipmitool power status
Chassis Power is on
```

- Boot Device

PXE , CDRROM BIOS
 . IPMI SOL(Serial Over LAN) ,
 BIOS . IPMI
 SOL . (* SOL .)

```
$ ipmitool chassis bootdev
bootdev [clear-cmos=yes|no]
bootdev [options=help,...]
  none : Do not change boot device order
  pxe  : Force PXE boot
  disk : Force boot from default Hard-drive
  safe : Force boot from default Hard-drive, request Safe Mode
  diag : Force boot from Diagnostic Partition
  cdrom : Force boot from CD/DVD
  bios  : Force boot into BIOS Setup
  floppy: Force boot from Floppy/primary removable media

$ ipmitool chassis bootdev cdrom      # <-- CD/DVD
Set Boot Device to cdrom
$ ipmitool chassis bootparam get 5
Boot parameter version: 1
Boot parameter 5 is valid/unlocked
Boot parameter data: 8014000000
Boot Flags :
  - Boot Flag Valid                # <-- Invalid ->
Valid
  - Options apply to only next boot # <--      Boot
Device
  - BIOS PC Compatible (legacy) boot
  - Boot Device Selector : Force Boot from CD/DVD # <-- No override
-> Force Boot ...
  - Console Redirection control : System Default
  - BIOS verbosity : Console redirection occurs per BIOS configuration
setting (default)
  - BIOS Mux Control Override : BIOS uses recommended setting of the mux at
the end of POST

$ ipmitool chassis bootdev bios      # <--      BIOS
Set Boot Device to bios

$ ipmitool chassis bootparam set bootflag force_bios # <--
chassis bootparam
Set Boot Device to force_bios
```

, R610 persistent 가 Dell 1950 persistent R610 가
^^

```
$ ipmitool chassis bootdev none options=help # <--
$ ipmitool chassis bootdev cdrom options=persistent # <--
CDROM BIOS 가
```


IPMI IP

IPMI IP (?) . IPMI IP . IPMI

FAN RPM,

IPMI IP 가? . IP IP , IPMI IP 가 . IP 가 .

IPMI IP .

```
$ ipmitool lan set 1 ipsrc static
$ ipmitool lan set 1 ipaddr
$ ipmitool lan set 1 netmask
$ ipmitool lan set 1 defgw ipaddr
$ ipmitool lan set 1 access on
```

- IP : 10.10.1.120 (ifconfig IP. IPMI)
- IPMI IP : 10.10.20.120
- IPMI GW : 10.10.20.1 (IP가 IPMI .)

```
$ ipmitool lan print 1
Set in Progress : Set Complete
Auth Type Support : NONE MD2 MD5 PASSWORD
Auth Type Enable : Callback : MD2 MD5
                  : User : MD2 MD5
                  : Operator : MD2 MD5
                  : Admin : MD2 MD5
                  : OEM :
IP Address Source : Static Address # <-- static
IP Address : 192.168.0.120 # <--
Subnet Mask : 255.255.255.0
MAC Address : ??:?:?:c4:ee:?:?:?
SNMP Community String : public
IP Header : TTL=0x40 Flags=0x40 Precedence=0x00 TOS=0x10
BMC ARP Control : ARP Responses Enabled, Gratuitous ARP Disabled
Default Gateway IP : 192.168.0.1
Default Gateway MAC : 00:00:00:00:00:00
...
$ ipmitool lan set 1 ipsrc static # <-- DHCP
가 static .
```

```

$ ipmitool lan set 1 ipaddr 10.10.20.120
Setting LAN IP Address to 10.10.20.120

$ ipmitool lan set 1 netmask 255.255.255.0
Setting LAN Subnet Mask to 255.255.255.0

$ ipmitool lan set 1 defgw ipaddr 10.10.20.1
Setting LAN Default Gateway IP to 10.10.20.1

$ ipmitool lan set 1 access on

$ ipmitool lan print 1
Set in Progress           : Set Complete
Auth Type Support        : NONE MD2 MD5 PASSWORD
Auth Type Enable         : Callback : MD2 MD5
                          : User      : MD2 MD5
                          : Operator : MD2 MD5
                          : Admin   : MD2 MD5
                          : OEM     :
IP Address Source        : Static Address
IP Address                : 10.10.20.120           # <--
Subnet Mask               : 255.255.255.0
MAC Address               : ??:?:?:c4:ee:?:?:?
SNMP Community String    : public
IP Header                 : TTL=0x40 Flags=0x40 Precedence=0x00 TOS=0x10
BMC ARP Control          : ARP Responses Enabled, Gratuitous ARP Disabled
Default Gateway IP       : 10.10.20.1           # <--
Default Gateway MAC      : 00:00:00:00:00:00
...

```

```

IPMI 2 , ping 10.10.20.120 . ping
ping IPMI over LAN(IPMI ) .

```

IPMI user

user .

```

$ ipmitool user list 1
ID Name Callin Link Auth IPMI Msg Channel Priv Limit
2 root true true true ADMINISTRATOR

$ ipmitool user set password 2 # <-- 2 ID
ID . 'root' ID.
Password for user 2: <-- PW
Password for user 2: <-- PW

$ ipmitool user summary 1
Maximum IDs : 16

```

```
Enabled User Count : 1 # <-- enable 가 1 .  
Fixed Name Count : 1
```

```
Enabled User가 0 ipmitool user enable 2 enable .  
interactive , ipmitool user set password 2 < >
```

```
$ ipmitool -I lan -H 10.10.20.20 -U root power status  
Password:  
Chassis Power is on  
  
$ ipmitool -I lan -H 10.10.20.20 -U root -P < > power status  
Chassis Power is on
```

IPMI event

```
ipmievd SEL(System Event Log, ipmitool sel info 가 ) 10  
syslog syslog LOCAL4 facility . CPU,  
FAN, H/W , RAID , Redundancy , Disk H/W  
SEL .
```

Linux (CentOS)

```
/etc/sysconfig/ipmievd . (120 )
```

```
IPMIEVD_OPTIONS="sel timeout=120 pidfile=/var/run/ipmievd.pid"
```

```
###
```

```
$ service ipmievd start
```

FreeBSD

```
ipmievd rc /usr/local/etc/rc.d/ipmievent  
, rc.conf ipmievent_enable="YES" 가 .
```

```
$ service ipmievent start
```

- ipmievent rc

```
#!/bin/sh  
#
```

```
# ipmievd daemon
#
# PROVIDE: ipmievent
# REQUIRE: LOGIN
# BEFORE: securelevel
# KEYWORD: shutdown
#
# Add the following lines to /etc/rc.conf to enable 'ipmievd':
# ipmievent_enable="YES"
#
# by truefeel (      , http://coffeenix.net/)

. /etc/rc.subr

ipmievent_enable=${ipmievent_enable:-"NO"}

name="ipmievent"
rcvar="ipmievent_enable" # `set_rcvar`
command="/usr/local/sbin/ipmievd"

[ -z "${ipmievent_flags}" ] && ipmievent_flags="timeout=120"
ipmievent_flags=" sel ${ipmievent_flags}"
required_files="/dev/ipmi0"
pidfile="/var/run/ipmievd.pid0"

load_rc_config $name
run_rc_command "$1"
```

- IPMI event syslog 가 ,

syslog (/etc/syslog.conf)

```
# IPMI
local4.debug@10.10.1.123
```

rsyslog (/etc/rsyslog.d/ipmi.conf)

```
# IPMI
local4.debug@10.10.1.123:514
```

LCD (Dell)

Dell LCD () . (Service Tag)가 . coffeenix.net .



```
$ ipmitool delloem lcd
...
  lcd set mode {none}|{modelname}|{ipv4address}|{macaddress}|
  {systemname}|{servicetag}|{ipv6address}|{ambienttemp}
  {systemwatt }|{assettag}|{userdefined}
...

$ ipmitool delloem lcd set mode userdefined coffeenix.net
LCD info
  Setting: User defined
  Text:    coffeenix.net

$ ipmitool delloem lcd set mode servicetag
LCD info
  Setting: System Tag
```

- http://coffeenix.net/board_print.php?bd_code=1765

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