Ipmitool

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Contents

The `ipmitool` command line tool is used to interact with a **Board Management Controller** (`BMC`) through the **Intelligent Platform Management Interface** (`IPMI`). IPMI is an open standard for monitoring, logging, and controlling hardware that is implemented independently of the main CPU, BIOS, and OS via sideband access. On some platforms, `IPMI` can also be used to manage hardware inventory information.

- `SDR` - Sensor Data Repository
- `SEL` - System Event Log
- `FRU` - Field Replaceable Unit

1   Install

```
aptitude install ipmitool
```

When using, make sure some kernel modules are loaded.

```
1   ipmi_devintf
2   ipmi_msghandler
3   ipmi_poweroff
4   ipmi_si
5   ipmi_watchdog
```

2   Set DHCP

```
ipmitool lan set 1 ipsrc dhcp
```

3   Reset the BMC

```
ipmitool mc reset cold
```

Or

```
ipmitool mc reset warm
```

4   BMC Sensor List

If the `BMC` supports it (this depends on the `OEM`), sensors can be listed. Some sensors may be on the `BMC` SOC, but most likely these sensors are made available to the `BMC` in various ways. Usually the `OEM` defines if the value is in or out of specification. Some values are dependent on the `CPU` `OEM`.

```
ipmitool -I open sdr list
ACPI State      | 0x01           | ok
LPC Reset       | 0x01           | ok
Chassis         | 0x01           | ok
BMC RST         | 0x00           | ok
CPU0PECI        | 42 degrees C   | ok
```

```
CPU1PECI       | 38 degrees C     | ok
+1.1V          | 1.11 Volts       | ok
+1.4V          | 1.41 Volts       | ok
+0.9V          | 0.91 Volts       | ok
+3.0V          | 2.98 Volts       | ok
+1.5V          | 1.51 Volts       | ok
+2.5V          | 2.42 Volts       | ok
CPU0VCCP       | 0.97 Volts       | ok
CPU1VCCP       | 0.96 Volts       | ok
DDRCPU0        | 0.75 Volts       | ok
DDRCPU1        | 0.74 Volts       | ok
+1.8VICH       | 1.79 Volts       | ok
+1.5VICH       | 1.55 Volts       | ok
```

5 Set The NAC Address

Setting the MAC address if the `BMC` can be done via the `OS` .

```
ipmitool lan set <channel> macaddr <macaddr>
```

Sometimes the `MAC` address can only be set by vendor specific raw commands. Sometimes the `BMC` has 2 `LAN` interfaces. The number depends on the hardware and the `BMC` firmware. The channel number usually needs to be specified.

```
ipmitool raw 0x0c 0x01 0x01 0xc2 0x00
ipmitool lan set 1 macaddr aa:bb:cc:dd:ee:ff
ipmitool lan print 1

ipmitool raw 0x0c 0x01 0x08 0xc2 0x01
ipmitool lan set 8 macaddr a0:42:3f:2c:61:a2
ipmitool lan print 8
```

6 Activate SOL

To enable **Serial Console Over LAN** (`SOL`). If the `OEM` has configured the `BMC` in a secure way, a **user** and **password** are required. Since this is usually not changed, this can be a security problem.

```
ipmitool -I lanplus -H $REMOTEHOST -U $USER -P $PASSWORD sol activate
ipmitool -I lanplus -H $REMOTEHOST -U $USER -P $PASSWORD -v sol info
```

7   Debug SOL

To debug the setup of **Serial Over Lan** (`SOL`), add the `-v` option to enable verbose output. verbose output and in some cases set the privilege level explicitly with the `-L` option.

```
ipmitool -v -L USER -I lanplus -H 172.20.50.102 -U admin -P admin sol
↪   activate
```

If this does not help use `namp` . See ipmitool Fails with Authentication Issues

8   Raw Commands

Sometimes the `OEM` implements undocumented features in the `BMC` firmware that can be accessed via the **raw** option. Since these commands are not standard, it depends on the `BMC` what the result will be. This is just an example.

```
ipmitool raw 0x36 0xc
```

9   Testing

Some `OEMs` implement meaningful self tests. However, dummy self tests that always pass have been seen in the wild.

```
ipmitool mc selftest
Selftest: passed
```

10   Links

- ipmitool source
- IPMI v2.0 Rev 1.1

11   History

Version	Date	Notes
0.1.4	2023-05-22	Improve writing, move history
0.1.3	2022-06-30	Formatting, changes->history, shell->bash

Version	Date	Notes
0.1.2	2020-05-03	Debug `SOL`
0.1.1	2020-05-02	Set MAC address raw
0.1.0	2016-02-12	Initial release