

双 BIOS FRB 超时切换方案

IPMI interface

查询 fail safe 功能状态

```
ipmitool -I lanplus -U admin -P admin123. -H 192.168.43.9 raw 0x3c 0x36
```

响应:

01 表示打开

00 表示关闭

设置 fail safe 功能

```
ipmitool -I lanplus -U admin -P admin123. -H 192.168.43.9 raw 0x3c 0x37 01
```

01 表示开启 bios fail safe

00 表示关闭 bios fail safe

(该配置是持久的, BMC 重启或 power cycle 不会有影响)

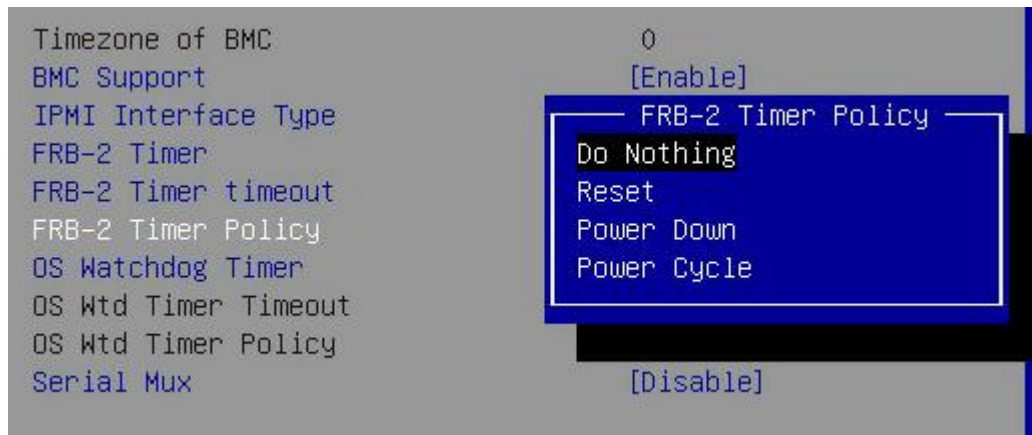
1. BIOS 启动时, BMC 通过检测 FRB Timer 是否超时判断 BIOS 启动是否成功。当超过设定的时间时, 超时动作由 BIOS 通过 WDT Set command 进行设置, 发送 IPMI 命令打开 fail safe 功能, 当累计 3 次失败后以副 BIOS 启动(如果当前镜像副 bios, 且发生 FRB 超时不会切换到主 bios,而是什么都不做仅仅打印日志)

TIMEZONE UT BMC	0
BMC Support	[Enable]
IPMI Interface Type	[Kcs Interface]
FRB-2 Timer	[Enable]
FRB-2 Timer timeout	6
FRB-2 Timer Policy	[Do Nothing]
OS Watchdog Timer	[Disable]
OS Wtd Timer Timeout	10

2. BIOS setup 菜单可以设定超时时间以及动作。设定完成后会发送个 BMC 进行配置。BMC 侧累计 3 次失败后以副 BIOS 启动。

Table 27-5. Set Watchdog Timer Command

byte	data field
Request Data	
1	<p>Timer Use</p> <p>[7] - 1b = don't log</p> <p>[6] - 1b = don't stop timer on <i>Set Watchdog Timer</i> command (new for IPMI v1.5) new parameters take effect immediately. If timer is already running, countdown value will get set to given value and countdown will continue from that point. If timer is already stopped, it will remain stopped. If the pre-timeout interrupt bit is set, it will get cleared.^[1]</p> <p>0b = timer stops automatically when <i>Set Watchdog Timer</i> command is received</p> <p>[5:3] - reserved</p> <p>[2:0] - timer use (logged on expiration when "don't log" bit = 0b)</p> <p>000b = reserved</p> <p>001b = BIOS FRB2</p> <p>010b = BIOS/POST</p> <p>011b = OS Load</p> <p>100b = SMS/OS</p> <p>101b = OEM</p> <p>110b-111b = reserved</p>
2	<p>Timer Actions</p> <p>[7] - reserved</p> <p>[6:4] - pre-timeout interrupt (logged on expiration when "don't log" bit = 0b)</p> <p>000b = none</p> <p>001b = SMI (optional)</p> <p>010b = NMI / Diagnostic Interrupt (optional)</p> <p>011b = Messaging Interrupt (this is the same interrupt as allocated to the messaging interface, if communications interrupts are supported for the system interface)</p> <p>100b,111b = reserved</p> <p>[3] - reserved</p> <p>[2:0] - timeout action</p> <p>000b = no action</p> <p>001b = Hard Reset</p> <p>010b = Power Down</p> <p>011b = Power Cycle</p> <p>100b,111b = reserved</p>



3. BMC 的 failsafe 动作会发生在 FRB2 超时动作前, 如果累计 3 次失败, 则触发 failsafe 动作切换到副 bios flash, 并不执行原有的超时动作
4. BIOS 启动在 SETUP、EFI SHELL、密码框等待输入、OptionRom 扫描阶段, 会暂时关闭 FRB。如果在这几种情况下停留超时, BMC 不会做出相应动作。