

实验器材：

树莓派板子
TP-LINK 路由器
网线
USB 转串口线
PC (WIN8)

实验步骤以及截图：

添加看门狗模块：

```
pi@raspberrypi ~/esystem $ sudo modprobe bcm2708_wdog
```

```
# /etc/modules: kernel modules to load at boot time.
#
# This file contains the names of kernel modules that should be loaded
# at boot time, one per line. Lines beginning with "#" are ignored.
# Parameters can be specified after the module name.

snd-bcm2835
bcm2708_wdog
```

写喂狗程序：

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <fcntl.h>

int main(){
    int fd = open("/dev/watchdog", O_WRONLY);
    if(fd == -1){
        printf("open err\n");
        exit(-1);
    }
    while(1){
        printf("Feeding\n");
        if(write(fd, "Henry", 1) != 1)
            break;
        sleep(10);
    }
    close(fd);
    return -1;
}
```

编译生成：

```
pi@raspberrypi ~/esystem $ sudo nano feed.c
pi@raspberrypi ~/esystem $ gcc -o feed feed.c
```

原理：

If a driver supports "Magic Close", the driver will not disable the watchdog unless a specific magic character 'V' has been sent to /dev/watchdog just before closing the file. If the userspace daemon closes the file without sending this special character, the driver will assume that the daemon (and userspace in general) died, and will stop pinging the watchdog without disabling it first. This will then cause a reboot if the watchdog is not re-opened in sufficient time.

[illegible]

A screenshot of a terminal window. The terminal background is black with white text. On the left side, the word "feeding" is repeated 15 times vertically. At the bottom, the prompt is "^Cpi@raspberrypi ~/esystem \$" followed by a green cursor. A white dialog box with a blue border is overlaid on the right side of the terminal. The dialog box contains a red circular icon with a white 'X' on the left. To the right of the icon, the text "Network error: Software caused connection abort" is displayed. At the bottom right of the dialog box, there is a button with the Chinese characters "确定" (Determine/OK).

```

pi@raspberrypi:~/esystem$ sudo ./feed
feeding
feeding
feeding
feeding
^C[ 250.986746] wdt: WDT device closed unexpectedly. WDT will not stop!
pi@raspberrypi:~/esystem$ Uncompressing Linux... done, booting the kernel.
[ 0.000000] Booting Linux on physical CPU 0x0
[ 0.000000] Initializing cgroup subsys cpu
[ 0.000000] Initializing cgroup subsys cpacct
[ 0.000000] Linux version 3.18.7+ (dc4@dc4-XPS13-9333) (gcc version 4.8.3 2
40303 (x86_64)) (x86_64) (x86_64) (x86_64) (x86_64) (x86_64) (x86_64) (x86_64)
pi@raspberrypi:~/esystem$ sudo ./feed
feeding
feeding
^Z
[1]+  Stopped                  sudo ./feed
pi@raspberrypi:~/esystem$ Uncompressing Linux... done, booting the kernel.
[ 0.000000] Booting Linux on physical CPU 0x0
[ 0.000000] Initializing cgroup subsys cpu

```

Code:

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <fcntl.h>

int main() {
    int fd = open("/dev/watchdog", O_WRONLY);
    if(fd == -1){
        printf("open err\n");
        exit(-1);
    }
    while(1){
        printf("feeding\n");
        if(write(fd, "Henry", 1)!=1)
            break;
        sleep(10);
    }
    close(fd);
    return -1;
}
```