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Step 1: Source Code

<https://www.opensourceforu.com/2010/10/debugging-linux-kernel-with-debugfs/>

Step 2: Build Module for Embedded Linux

```
test-build$ ls -l
```

```
total 8
```

```
-rw-r--r-- 1 alexvatti alexvatti 334 Mar 29 04:40 Makefile
```

```
-rw-r--r-- 1 alexvatti alexvatti 2110 Mar 29 04:35 my_debugfs.c
```

Makefile: (Mention the Kernel Build PATH)

```
obj-m := my_debugfs.o
```

```
KDIR := /home/ale xvatti/AlexBuildLocation/workspace/remote-build-poky-pennywhistle/  
build/tmp/work/jadak_pennywhistle-poky-linux-gnueabi/linux-jadak-pennywhistle/  
4.14+AUTOINC+3acd7e0aee-r0/build/
```

```
PWD := $(shell pwd)
```

```
all:
```

```
$(MAKE) ARCH=arm -C $(KDIR) M=$(PWD) modules
```

```
clean:
```

```
$(MAKE) -C $(KDIR) M=$(PWD) clean
```

```
test-build$ make all
```

```
make ARCH=arm -C /home/ale xvatti/AlexBuildLocation/workspace/remote-build-poky-  
pennywhistle/build/tmp/work/jadak_pennywhistle-poky-linux-gnueabi/linux-jadak-pennywhistle/  
4.14+AUTOINC+3acd7e0aee-r0/build/ M=/home/ale xvatti/AlexBuildLocation/workspace/test-  
build modules
```

```
make[1]: Entering directory '/home/ale xvatti/AlexBuildLocation/workspace/remote-build-poky-  
pennywhistle/build/tmp/work/jadak_pennywhistle-poky-linux-gnueabi/linux-jadak-pennywhistle/  
4.14+AUTOINC+3acd7e0aee-r0/build'
```

```
CC [M] /home/ale xvatti/AlexBuildLocation/workspace/test-build/my_debugfs.o
```

```
Building modules, stage 2.
```

```
MODPOST 1 modules
```

```
CC /home/ale xvatti/AlexBuildLocation/workspace/test-build/my_debugfs.mod.o
```

```
LD [M] /home/ale xvatti/AlexBuildLocation/workspace/test-build/my_debugfs.ko
make[1]: Leaving directory '/home/ale xvatti/AlexBuildLocation/workspace/remote-build-poky-
pennywhistle/build/tmp/work/jadak_pennywhistle-poky-linux-gnueabi/linux-jadak-pennywhistle/
4.14+AUTOINC+3acd7e0aee-r0/build'
```

Step 3: Copy & load the Module to Embedded Board

Check , debug fs mounted on embedded Board

```
root@:/data/sample-code# ls -l /sys/kernel/debug/
```

```
total 0
```

```
drwxr-xr-x  3 root root 0 Jan  1  1970 30900000.caam
drwxr-xr-x 30 root root 0 Jan  1  1970 bdi
drwxr-xr-x 13 root root 0 Jan  1  1970 block
drwxr-xr-x  2 root root 0 Jan  1  1970 ci_hdrc.0
drwxr-xr-x 437 root root 0 Jan  1  1970 clk
drwxr-xr-x  2 root root 0 Mar  2 04:57 dell
drwxr-xr-x  2 root root 0 Jan  1  1970 dma_buf
drwxr-xr-x  2 root root 0 Jan  1  1970 extfrag
-rw-r--r--  1 root root 0 Jan  1  1970 fault_around_bytes
-r--r--r--  1 root root 0 Jan  1  1970 gpio
drwxr-xr-x  2 root root 0 Jan  1  1970 hid
drwxr-xr-x  2 root root 0 Jan  1  1970 iio
drwxr-xr-x  2 root root 0 Jan  1  1970 memblock
drwxr-xr-x  2 root root 0 Jan  1  1970 mmc0
drwxr-xr-x  3 root root 0 Jan  1  1970 mmc1
drwxr-xr-x  2 root root 0 Jan  1  1970 mtd
drwxr-xr-x  2 root root 0 Jan  1  1970 opp
drwxr-xr-x  4 root root 0 Jan  1  1970 pinctrl
drwxr-xr-x  3 root root 0 Jan  1  1970 pm_genpd
drwxr-xr-x  2 root root 0 Jan  1  1970 pm_qos
-r--r--r--  1 root root 0 Jan  1  1970 pwm
drwxr-xr-x  7 root root 0 Jan  1  1970 regmap
drwxr-xr-x 18 root root 0 Jan  1  1970 regulator
-r--r--r--  1 root root 0 Jan  1  1970 sleep_time
-r--r--r--  1 root root 0 Jan  1  1970 suspend_stats
drwxr-xr-x  2 root root 0 Jan  1  1970 ubi
drwxr-xr-x  2 root root 0 Jan  1  1970 ubifs
drwxr-xr-x  2 root root 0 Jan  1  1970 usb
-r--r--r--  1 root root 0 Jan  1  1970 wakeup_sources
```

Insert the module:

```
sample-code# chmod a+x my_debugfs.ko
```

```
sample-code# insmod ./my_debugfs.ko
```

```
sample-code# lsmod
```

Module	Size	Used by
my_debugfs	16384	0

Step 4: Test the Module on Embedded Board

```
ls -l /sys/kernel/debug/dell/
```

```
hexnum number text
```

```
sample-code# ls -l /sys/kernel/debug/dell/text
```

```
-rw-r--r-- 1 root root 0 Mar  2 04:57 /sys/kernel/debug/dell/text
```

```
sample-code# ls -l /sys/kernel/debug/dell/hexnum
```

```
-rw-r--r-- 1 root root 0 Mar  2 04:57 /sys/kernel/debug/dell/hexnum
```

```
sample-code# ls -l /sys/kernel/debug/dell/number
```

```
-rw-r--r-- 1 root root 0 Mar  2 04:57 /sys/kernel/debug/dell/number
```

```
sample-code# cat /sys/kernel/debug/dell/hexnum
```

```
0x0000000000000000
```

```
sample-code# cat /sys/kernel/debug/dell/number
```

```
0
```

```
sample-code# echo 10 > /sys/kernel/debug/dell/number
```

```
sample-code# cat /sys/kernel/debug/dell/number
```

```
10
```

```
sample-code# echo 10 > /sys/kernel/debug/dell/hexnum
```

```
sample-code# cat /sys/kernel/debug/dell/hexnum
```

```
0x0000000000000000a
```

```
sample-code# echo "Hello! Sreedhar" > /sys/kernel/debug/dell/text
```

```
sample-code# cat /sys/kernel/debug/dell/text
```

```
Hello! Sreedhar
```