

IoT: Client Devices

Static v. Dynamic Linking

```
1 ./printer.c
2
3 #include <stdio.h>
4
5 int main(void) {
6     printf("test succeeded!\n");
7     return 0;
8 }
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```

Static Compilation

Same printer case from earlier

```
1 ./makefile-arm-sd
2
3 BUILDROOT_HOME=/home/cclamb/buildroot-2016.11.1
4
5 CC=$(BUILDROOT_HOME)/output/host/usr/bin/arm-linux-gcc
6 CFLAGS=--sysroot=$(BUILDROOT_HOME)/output/staging
7 INCLUDES=
8 LFLAGS=
9
10 LIBS=-uClibc -lc
11
12 SRC=printer.c
13 OBJ=$(SRC:.c=.o)
14
15 STATIC_MAIN=test-print-s
16 DYNAMIC_MAIN=test-print-d
17
18 RM=rm -rf
19
20 .c.o:
21     $(CC) $(CFLAGS) $(INCLUDES) -c $< -o $@
22
23 all: $(OBJ)
24     $(CC) $(CFLAGS) -static $(INCLUDES) -o $(STATIC_MAIN) $(OBJ) $(LFLAGS) $(LIBS)
25     $(CC) $(CFLAGS) $(INCLUDES) -o $(DYNAMIC_MAIN) $(OBJ) $(LFLAGS) $(LIBS)
26
27 clean:
28     $(RM) $(STATIC_MAIN) $(DYNAMIC_MAIN) *.o *~
```

Different Makefile

One dynamic (test-print-d), one static (test-print-s)

```
cclamb@ubuntu:~/Work/iot-client $ make -f makefile-arm-sd
/home/cclamb/buildroot-2016.11.1/output/host/usr/bin/arm-linux-gcc --sysroot=/home/cclamb/buildroot-2016.11.1/output/staging -static -o test-print-s printer.o -uClibc -lc
/home/cclamb/buildroot-2016.11.1/output/host/usr/bin/arm-linux-gcc --sysroot=/home/cclamb/buildroot-2016.11.1/output/staging -o test-print-d printer.o -uClibc -lc
cclamb@ubuntu:~/Work/iot-client $ ls -alh
total 188K
drwxrwxr-x  3 cclamb cclamb 4.0K Jan 16 18:09 .
drwxrwxr-x 18 cclamb cclamb 4.0K Jan 16 15:01 ..
drwxrwxr-x  8 cclamb cclamb 4.0K Jan 16 18:08 .git
-rw-rw-r--  1 cclamb cclamb  22 Jan 16 16:39 .gitignore
-rw-rw-r--  1 cclamb cclamb  427 Jan 16 16:26 makefile-arm
-rw-rw-r--  1 cclamb cclamb  552 Jan 16 17:57 makefile-arm-sd
-rw-rw-r--  1 cclamb cclamb  314 Jan 16 15:16 makefile-x86_64
-rw-rw-r--  1 cclamb cclamb   82 Jan 16 15:01 printer.c
-rw-rw-r--  1 cclamb cclamb 1.1K Jan 16 16:31 printer.o
-rw-rw-r--  1 cclamb cclamb  519 Jan 16 15:08 requestor.c
-rwxrwxr-x  1 cclamb cclamb 4.7K Jan 16 18:09 test-print-d
-rwxrwxr-x  1 cclamb cclamb 137K Jan 16 18:09 test-print-s
cclamb@ubuntu:~/Work/iot-client $
```

Run the Makefile

What are the differences?

Why so big?