



LLDB

How to use?

1. Compile your program with -g flag

```
gcc -g -Wall -Wextra -Werror
```

```
~/Desktop/42/Piscine/C01/ex03 master ?87 16:02:42  
> gcc -g -Wall -Werror -Wextra ft_div_mod.c main.c
```

2. Launch your program in lldb

```
lldb so_long "maps/42.ber"  
or  
lldb a.out
```

```
~/Desktop/42/Piscine/C01/ex03 master ?88 16:02:56  
> lldb a.out  
(lldb) target create "a.out"  
Current executable set to '/Users/vkatason/Desktop/42/Piscine/C01/ex03/a.out' (x86_64).  
(lldb)
```

3. **breakpoint set [file:]line_number** - put breakpoint where you want. By default you can just put it on the main like this

```
b main
```

```
(lldb) b main  
Breakpoint 1: where = a.out`main + 15 at main.c:25:7, address = 0x0000000100003f2f  
(lldb)
```

4. Run lldb with **run [arg1 arg2 ...]** or without arguments (if you used arguments at the step 2, don't use it again)

run

```
(lldb) run
Process 19564 launched: '/Users/vkatason/Desktop/42/Piscine/C01/ex03/a.out' (x86_64)
Process 19564 stopped
* thread #1, queue = 'com.apple.main-thread', stop reason = breakpoint 1.1
  frame #0: 0x0000000100003f2f a.out`main at main.c:25:7
    22         int     division;
    23         int     modulo;
    24
->  25         num1 = 8;
    26         num2 = 2;
    27         ft_div_mod(num1, num2, &division, &modulo);
    28         printf("division %d, modulo %d", division, modulo);
Target 0: (a.out) stopped.
(lldb)
```

5. Run graphic user interface

gui

```
(lldb) gui
(lldb)
```

You will have this result (use s or n controls to look through your programm)

LLDB (F1) | Target (F2) | Process (F3) | Thread (F4) | View (F5) | Help (F6)

<Sources>
a.out`main
15
16 void ft_div_mod(int a, int b, int *div, int *mod);
17
18 int main(void)
19 {
20 int num1;
21 int num2;
22 int division;
23 int modulo;
24
25 num1 = 8; <<< Thread 1: breakpoint 1.1
26 num2 = 2;
27 ft_div_mod(num1, num2, &division, &modulo);
28 printf("division %d, modulo %d", division, modulo);
29 return (0);
30 }
31

<Variables>
(int) num1 = 69669
(int) num2 = 32766
(int) division = -272632024
(int) modulo = 0

Process: 19564 stopped Thread: 0x83e85e Frame: 0 PC = 0x0000000100003f2f

LLDB (F1) | Target (F2) | Process (F3) | Thread (F4) | View (F5) | Help (F6)

<Sources>
a.out`main
15
16 void ft_div_mod(int a, int b, int *div, int *mod);
17
18 int main(void)
19 {
20 int num1;
21 int num2;
22 int division;
23 int modulo;
24
25 num1 = 8;
26 num2 = 2; <<< Thread 1: step in
27 ft_div_mod(num1, num2, &division, &modulo);
28 printf("division %d, modulo %d", division, modulo);
29 return (0);
30 }
31

<Variables>
(int) num1 = 8
(int) num2 = 32766
(int) division = -272632024
(int) modulo = 0

Process: 19564 stopped Thread: 0x83e85e Frame: 0 PC = 0x0000000100003f36

```
LLDB (F1) | Target (F2) | Process (F3) | Thread (F4) | View (F5) | Help (F6) |
<Sources>
a.out`main
15 void ft_div_mod(int a, int b, int *div, int *mod);
16
17 int main(void)
18 {
19     int num1;
20     int num2;
21     int division;
22     int modulo;
23
24
25     num1 = 8;
26     num2 = 2;
27     ft_div_mod(num1, num2, &division, &modulo); <<< Thread 1: step in
28     printf("division %d, modulo %d", division, modulo);
29     return (0);
30 }
31

<Variables>
(int) num1 = 8
(int) num2 = 2
(int) division = -272632024
(int) modulo = 0

<Threads>
◆ process 19564

Process: 19564 stopped Thread: 0x83e85e Frame: 0 PC = 0x0000000100003f3d
```

```
LLDB (F1) | Target (F2) | Process (F3) | Thread (F4) | View (F5) | Help (F6) |
<Sources>
a.out`ft_div_mod
1 /* *****
2 /*
3 /*
4 /* ft_div_mod.c
5 /*
6 /* By: vkatason <vkaton@student.42.fr>
7 /*
8 /* Created: 2022/08/22 15:26:36 by vkatason
9 /* Updated: 2022/08/23 12:21:44 by vkatason
10 /*
11 /* *****
12 */
13 void ft_div_mod(int a, int b, int *div, int *mod)
14 {
15     *div = a / b; <<< Thread 1: step in
16     *mod = a % b;
17 }
18

<Variables>
(int) a = 8
(int) b = 2
◆ (int *) div = 0x00007ffeefbfff700
◆ (int *) mod = 0x00007ffeefbfff6fc

<Threads>
◆ process 19564

Process: 19564 stopped Thread: 0x83e85e Frame: 0 PC = 0x0000000100003f02
```

This screenshot shows the LLDB interface with a breakpoint set at line 16 of the file `ft_div_mod.c`. The source code is displayed in the main pane, with line 16 highlighted in blue. The variables pane shows the current state of variables: `(int) a = 8`, `(int) b = 2`, `-(int *) div = 0x00007ffefbfff700`, and `-(int *) mod = 0x00007ffefbfff6fc`. The threads pane shows the current thread as `process 19564`. The status bar at the bottom indicates the process is stopped at PC `0x0000000100003f0f`.

```
LLDB (F1) | Target (F2) | Process (F3) | Thread (F4) | View (F5) | Help (F6) |
<Sources>
a.out`ft_div_mod
1  /* *****
2  /*
3  /*
4  /*  ft_div_mod.c
5  /*
6  /*  By: vkatason <vkaton@student.42.fr>
7  /*
8  /*  Created: 2022/08/22 15:26:36 by vkatason
9  /*  Updated: 2022/08/23 12:21:44 by vkatason
10 /*
11 /* *****
12 /*
13 void    ft_div_mod(int a, int b, int *div, int *mod)
14 {
15     *div = a / b;
16     *mod = a % b;
17 }
18

<Variables>
(int) a = 8
(int) b = 2
-(int *) div = 0x00007ffefbfff700
-(int *) mod = 0x00007ffefbfff6fc

<Threads>
process 19564

Process: 19564  stopped  Thread: 0x83e85e  Frame: 0  PC = 0x0000000100003f0f
```

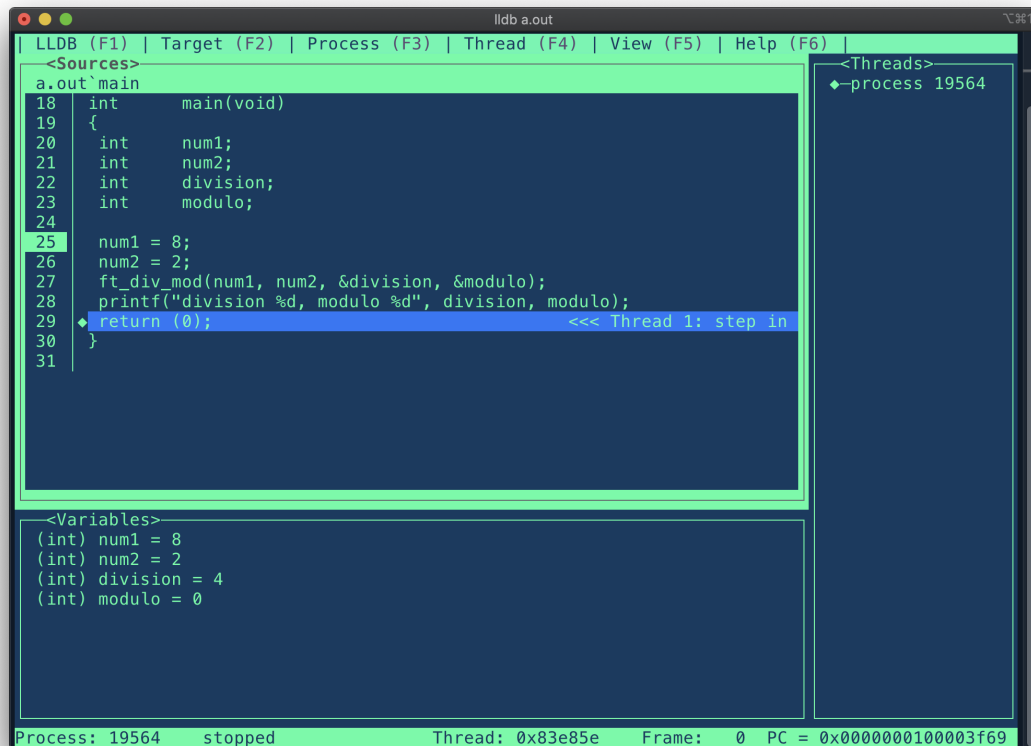
This screenshot shows the LLDB interface with a breakpoint set at line 17 of the file `ft_div_mod.c`. The source code is displayed in the main pane, with line 17 highlighted in blue. The variables pane shows the current state of variables: `(int) a = 8`, `(int) b = 2`, `-(int *) div = 0x00007ffefbfff700`, and `-(int *) mod = 0x00007ffefbfff6fc`. The threads pane shows the current thread as `process 19564`. The status bar at the bottom indicates the process is stopped at PC `0x0000000100003f1c`.

```
LLDB (F1) | Target (F2) | Process (F3) | Thread (F4) | View (F5) | Help (F6) |
<Sources>
a.out`ft_div_mod
1  /* *****
2  /*
3  /*
4  /*  ft_div_mod.c
5  /*
6  /*  By: vkatason <vkaton@student.42.fr>
7  /*
8  /*  Created: 2022/08/22 15:26:36 by vkatason
9  /*  Updated: 2022/08/23 12:21:44 by vkatason
10 /*
11 /* *****
12 /*
13 void    ft_div_mod(int a, int b, int *div, int *mod)
14 {
15     *div = a / b;
16     *mod = a % b;
17 }
18

<Variables>
(int) a = 8
(int) b = 2
-(int *) div = 0x00007ffefbfff700
-(int *) mod = 0x00007ffefbfff6fc

<Threads>
process 19564

Process: 19564  stopped  Thread: 0x83e85e  Frame: 0  PC = 0x0000000100003f1c
```



LLDB Controls

s (step)	Step one line of code, entering function calls
n (next)	Step one line of code, skipping function calls
c (continue)	Resume execution of the debugged program
p (print)	Evaluates and prints the value of the specified expression
bt (backtrace)	Prints a stack trace of the current execution context
Ctrl-A / Home	Move the cursor to the beginning of the line
Ctrl-E / End	Move the cursor to the end of the line.
Ctrl-L	Clear the screen
Tab	Autocomplete commands and arguments
Ctrl-D	Exit LLDB