



Debugger window showing C code and variable values.

```

57 printf("Exception : UsageFault\n");
58 while(1);
59 }
60
61 #attribute__((naked)) void UsageFault_Handler(void)
62 {
63     //here we extracted the value of MSP which happens to be the
64     //base address of the stack frame(thread mode) which got saved during the
65     //from thread mode to handler mode
66     __asm ("MRS r0,MSP");
67     __asm ("B UsageFault_Handler_c");
68 }
69
70 void UsageFault_Handler_c(uint32_t *pBaseStackFrame)
71 {
72     uint32_t *pUFSR = (uint32_t*)0xE000ED2A;
73     printf("Exception : UsageFault\n");
74     printf("UFSR = %x\n", (*pUFSR) & 0xFFFF);
75     printf("pBaseStackFrame = %p\n", pBaseStackFrame);
76     printf("Value of R0 = %x\n", pBaseStackFrame[0]);
77     printf("Value of R1 = %x\n", pBaseStackFrame[1]);
78     printf("Value of R2 = %x\n", pBaseStackFrame[2]);
79     printf("Value of R3 = %x\n", pBaseStackFrame[3]);
80     printf("Value of R12 = %x\n", pBaseStackFrame[4]);
81     printf("Value of LR = %x\n", pBaseStackFrame[5]);
82     printf("Value of PC = %x\n", pBaseStackFrame[6]);
83     printf("Value of XPSR = %x\n", pBaseStackFrame[7]);
84     while(1);
85 }
86

```

Variables window:

Name	Type	Value
pBaseStackFrame	uint32_t*	0x2001ffc8
pUFSR	uint32_t*	0xe000ed2a

Registers window:

Name	Value
r0	0x19 (Hex)
r1	0x0 (Hex)
r2	0x22400000 (Hex)
r3	0x12000000 (Hex)
r4	0x20000094 (Hex)
r5	0x0 (Hex)
r6	0x0 (Hex)
r7	0x2001ffb0 (Hex)
r8	0
r9	0
r10	0
r11	0
r12	0x80014d3 (Hex)
sp	0x2001ffb0
lr	0x80003b3 (Hex)
pc	0x80003b2 <UsageFault_Handler_c-150>
xpsr	0x21000006 (Hex)
d0	0
d1	0
d2	0
d3	0
...	...

Console window:

```

Port 0 X
pBaseStackFrame = 0x2001ffc8
Value of R0 = 20000000
Value of R1 = 20000064
Value of R2 = ffffffff
Value of R3 = 20010001
Value of R12 = 0
Value of LR = 80002d3
Value of PC = 20010000
Value of XPSR = 20000000
Exception : UsageFault
UFSR = 1
pBaseStackFrame = 0x2001ffc8
Value of R0 = 20000000
Value of R1 = 20000064
Value of R2 = ffffffff
Value of R3 = 20010001
Value of R12 = 0
Value of LR = 80002d3
Value of PC = 20010000
Value of XPSR = 61000000

```

Debugger window showing assembly code and variable values.

```

20010000: <UNDEFINED> instruction: 0xffffffff
20010004: push {r2, r3, r4, r5, r6}
20010006: ldr r5, [r1, #36] ; 0x24
20010008: ldrrh r6, [r2, #14]
2001000a: subs r7, #210 ; 0xd2
2001000c: lsls r3, r3, #23
2001000e: lsls r3, r4, #3
20010010: str r7, [r3, #52] ; 0x34
20010012: strb r5, [r2, #4]
20010014: <UNDEFINED> instruction: 0xfe91b8d
20010018: b.n 0x2000fd20
2001001a: add r3, sp, #52 ; 0x354

```

Registers window:

Name	Value
r0	0x20000000 (Hex)
r1	0x20000064 (Hex)
r2	0xffffffff (Hex)
r3	0x20010001 (Hex)
r4	0x20000094 (Hex)
r5	0x0 (Hex)
r6	0x0 (Hex)
r7	0x2001ffe8 (Hex)
r8	0
r9	0
r10	0
r11	0
r12	0x0 (Hex)
sp	0x2001ffe8
lr	0x80002d3 (Hex)
pc	0x20010000
xpsr	0x61000000 (Hex)
d0	0
d1	0
d2	0
d3	0
...	...

Console window:

```

Port 0 X
pBaseStackFrame = 0x2001ffc8
Value of R0 = 20000000
Value of R1 = 20000064
Value of R2 = ffffffff
Value of R3 = 20010001
Value of R12 = 0
Value of LR = 80002d3
Value of PC = 20010000
Value of XPSR = 61000000
Exception : UsageFault
UFSR = 1
pBaseStackFrame = 0x2001ffc8
Value of R0 = 20000000
Value of R1 = 20000064
Value of R2 = ffffffff
Value of R3 = 20010001
Value of R12 = 0
Value of LR = 80002d3
Value of PC = 20010000
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```