

Creating Delays

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Creating Delays

- There are 2 ways to create a delay in the Mbed system
 - Mbed preferred method
 - Sleep
 - Potentially puts the processor in a sleep mode
 - May impact operation of some of our peripherals
 - EE2905 preferred method
 - Wait
 - Creates harmless instructions that use up time

Creating Delays

- Mbed preferred method
 - Uses the RTOS to implement the delay
 - If sufficiently long – will put the processor in sleep mode
 - May have unintended consequences when working with peripherals
 - Will react to interrupts

Library access:

```
#include "platform/mbed_thread.h"
```

note the “ ” since this is not a C standard library

Code:

```
thread_sleep_for(value);
```

value is an integer

value is in milli-seconds

**Do not use this method
Use the EE2905
preferred method**

Creating Delays

- Mbed preferred method
`thread_sleep_for(value);`

```
#include "mbed.h"
#include "platform/mbed_thread.h" // only needed when sleeping
#include <stdio.h> // only needed when printing

#define T_WAIT 2000 // in ms

int main(void){
    setbuf(stdout, NULL); // disable buffering when printing

    // splash
    printf("\n\nmy_flash\n");
    printf("Using Mbed OS version %d.%d.%d\n\n",
        MBED_MAJOR_VERSION, MBED_MINOR_VERSION, MBED_PATCH_VERSION);

    // create the LED object
    DigitalOut MyLED(LED1);

    // my splash
    printf("My first mbed program\n");

    // run an infinite loop
    while(1){
        // flash the LED and print to the terminal
        printf("off\n");
        MyLED.write(0);
        thread_sleep_for(T_WAIT);
        printf("on\n");
        MyLED.write(1);
        thread_sleep_for(T_WAIT);
    } // end while

    return 0;
} // end main
```

Do not use this method
Use the EE2905
preferred method

Creating Delays

- EE2905 preferred method
 - Creates harmless instructions that use up time
 - Does not put the processor to sleep
 - Will react to interrupts

Library access:

none required

Use this method

Code:

```
wait_us(value);
```

`value` is an integer

`value` is in micro-seconds

Creating Delays

- EE2905 preferred method
`wait_us(value);`

```
#include "mbed.h"
#include <stdio.h>          // only needed when printing

#define T_WAIT 2000000    // in us

int main(void){
    setbuf(stdout, NULL); // disable buffering when printing

    // splash
    printf("\n\nmy_flash\n");
    printf("Using Mbed OS version %d.%d.%d\n\n",
           MBED_MAJOR_VERSION, MBED_MINOR_VERSION, MBED_PATCH_VERSION);

    // create the LED object
    DigitalOut MyLED(LED1);

    // my splash
    printf("My first mbed program\n");

    // run an infinite loop
    while(1){
        // flash the LED and print to the terminal
        printf("off\n");
        MyLED.write(0);
        wait_us(T_WAIT);
        printf("on\n");
        MyLED.write(1);
        wait_us(T_WAIT);
    } // end while

    return 0;
} // end main
```

Use this method