

MCR10133
Add prototype for C `time()` function to `time.h`
Revision 1.1

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1 Problem Description

The "C Users's Guide", HH07, on page 4-202, describes the runtime library function `time()` as being present, yet it does not appear in any header file, including the obvious `time.h` header file.

The issue is reported in this ticket: <https://multics-trac.swenson.org/ticket/187>.

2 Proposed Fix

The proposed fix is simply to add a prototype for the `time()` function to the existing `time.h` header file.

So either of these prototypes:

```
extern long time();
```

```
extern int time();
```

may be acceptable. But since ISO C declares it as:

```
time_t time(time_t *tloc);
```

but K&R C doesn't allow the parameters to be declared in the prototype, the best prototype would be:

```
extern long time();
```

A `compare_ascii` output of `time.h` showing the proposed fix is below:

```
cpa >s13p>cc>incl>time.h ==
```

Inserted in B:

```
B18      extern long time();
Preceding:
A18      extern long timezone;
```

Comparison finished: 1 difference, 1 line.

3 Documentation

No changes to documentation are necessary.

4 Test

The following test program is used to check the compilation and execution of a program that calls the `time` function.

```
#include <stdio.h>
#include <time.h>

main()
{
    long tloc;
    long retval1;
    long retval2;

    tloc = 77;
    retval1 = 42;
    retval2 = 43;

    retval1 = time(&tloc);
    printf("time: tloc=%ld\n", tloc);
    printf("time: retval1=%ld\n", retval1);

    retval2 = time(NULL);
    printf("time: retval2=%ld\n", retval2);
}
```

Compiling and running the test program shows that the declaration works and the function works.

Note that the C compiler does not use the `translator` search paths to find header files. The `-incl` control argument must be provided on the compiler command line in order to add additional directories to those searched for header files.

Running the above test program without the updated `time.h` header file produces the following results:

```
time: tloc=1687899653
time: retval1=0
time: retval2=0
```

Running it with the updated header file results in:

```
time: tloc=1687899615
time: retval1=1687899615
time: retval2=1687899616
```

5 Version History

2023-06-17	1.0	Initial version of the MCR.
2023-06-27	1.1	Updated with additional findings.