

Compilation Process in C

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Introduction to C Compilation

Defination :The compilation process in C transforms a human-readable code into a machine-readable format. For C programming language, it happens before a program starts executing to check the syntax and warnings present in our C program

- ❖ C program has to go through several phases of compilation (translation) to become an executable file that a machine can understand.
- ❖ The compilation process in C involves four steps: pre-processing, compiling, assembling, and linking then, we run the obtained executable file to get an output on the screen.

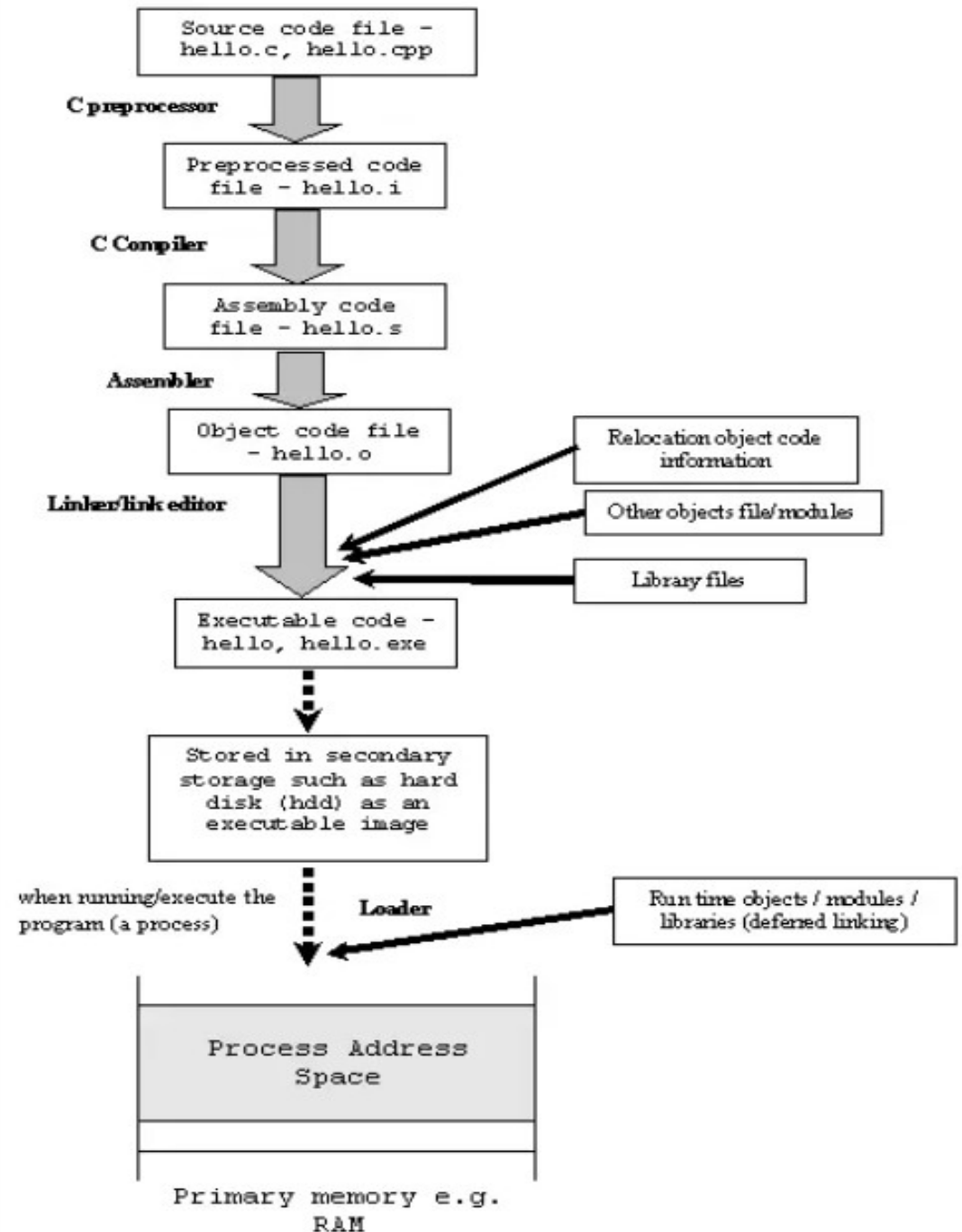
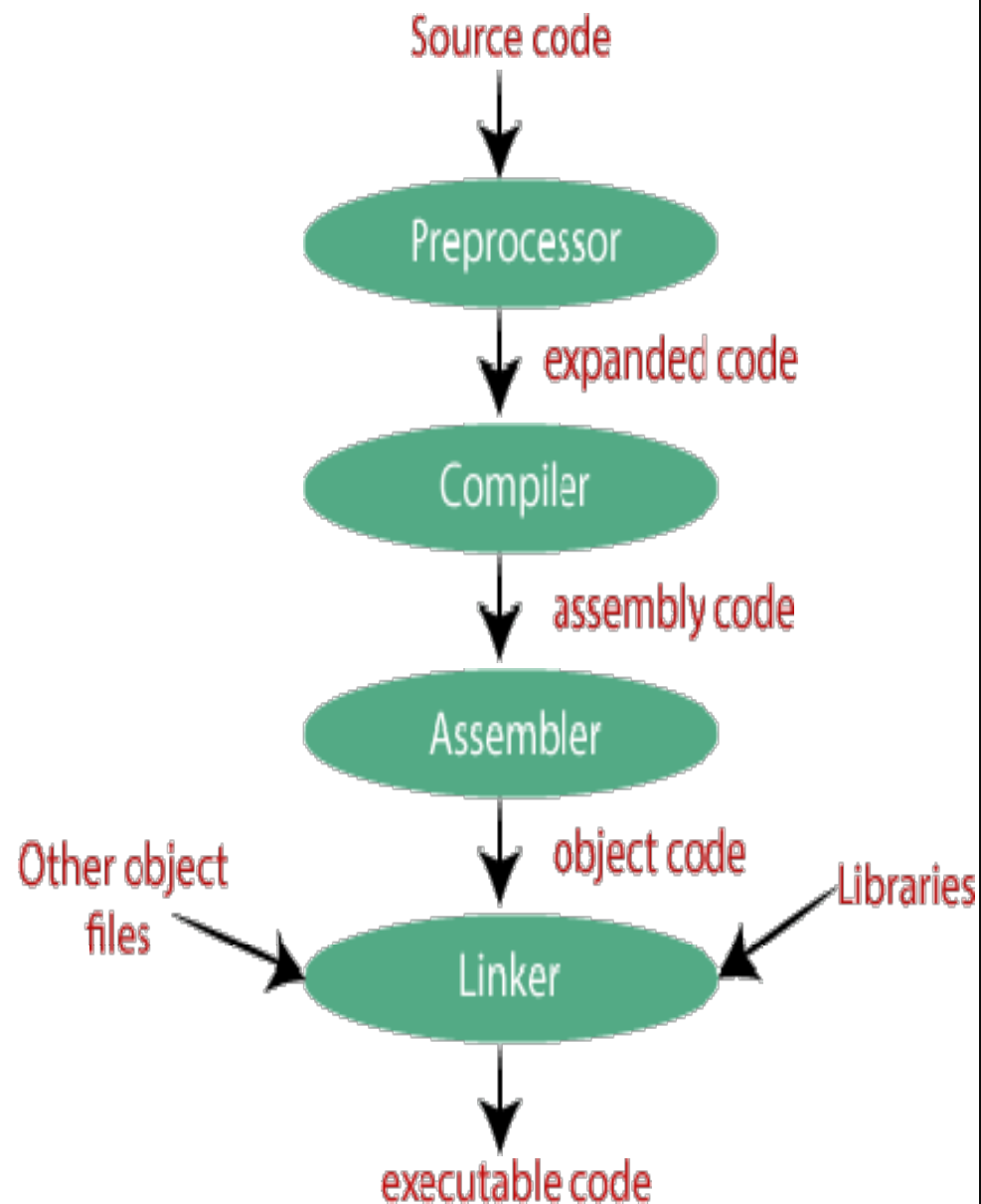
```
#include<stdio.h>
main()
{
printf("Hello javaTpoint");
return 0;
}
```



```
0100000000000000
0111111111111111
0101010110101010
0000001111111111
0000011111111111
00000010101011
```

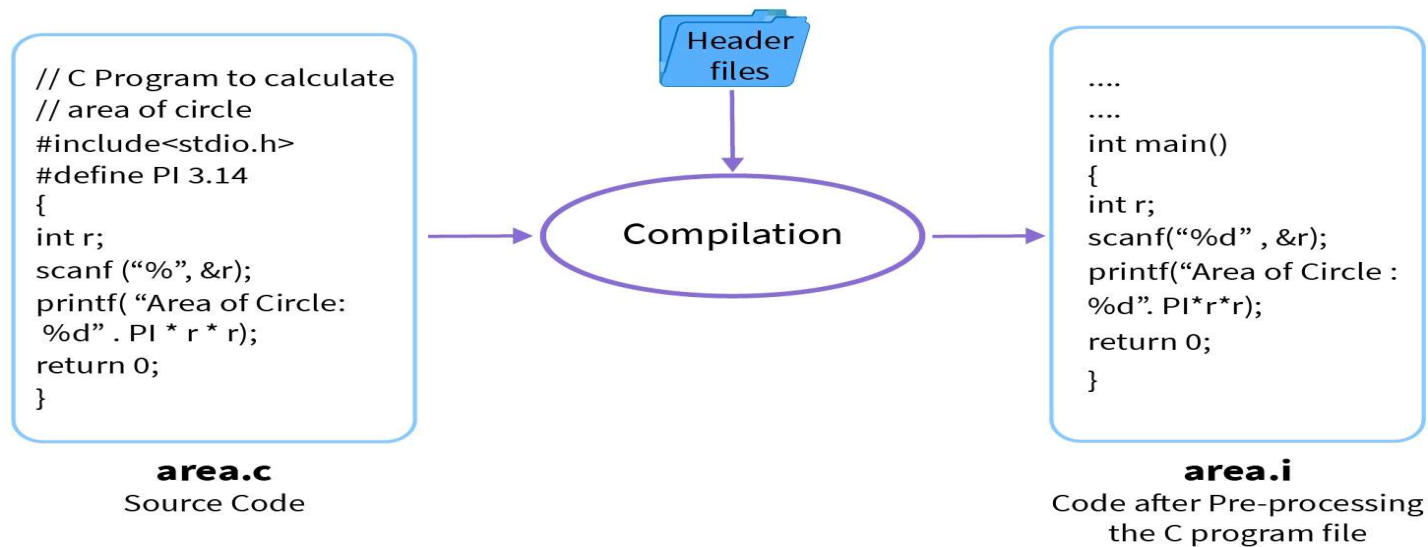
- Compilation stages
 - Preprocessing
 - Compiling
 - Assembling
 - Linking

Flow Diagram



Stage 1: Preprocessing

- Removal of Comments
- Expansion of Macros
- included files.
- Conditional compilation

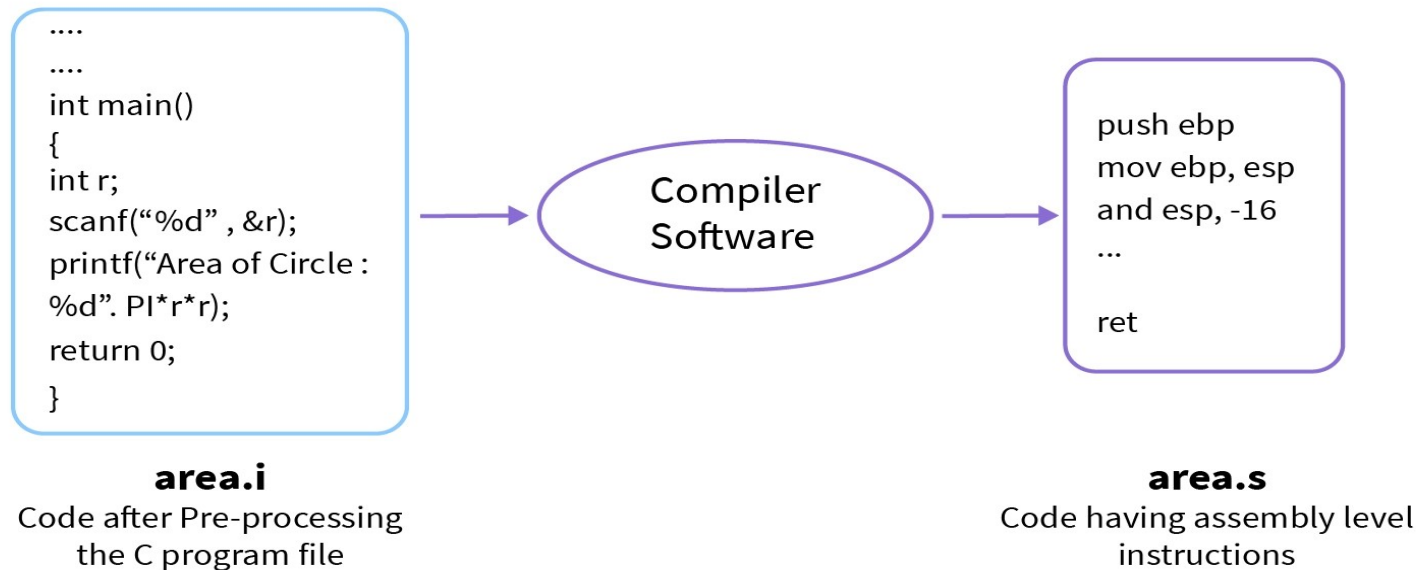


Simple C Program

```
/* Filename:    hello.c  
   Author:      RAMANA REDDY  
*/  
  
#include <stdio.h>  
  
// if we uncomment the below line, then the program will print AGE in the output.  
#define AGE 18  
  
int main()  
{  
    // if `AGE` is defined then print the `AGE` else print "Not Defined"  
    #ifdef AGE  
        printf("Age is %d", AGE);  
    #else  
        printf("Not Defined");  
    #endif  
    return 0;  
}
```

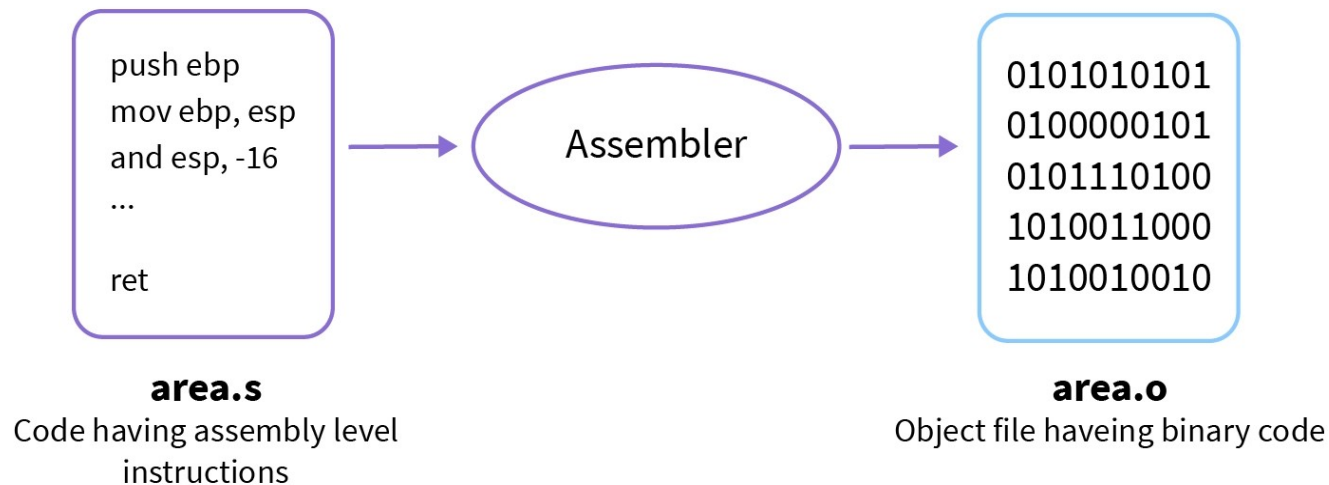
Stage 2: Compiling

- o Translates the preprocessor-modified source code into **object code (machine code)**
- o Checks for **syntax errors** and **warnings**



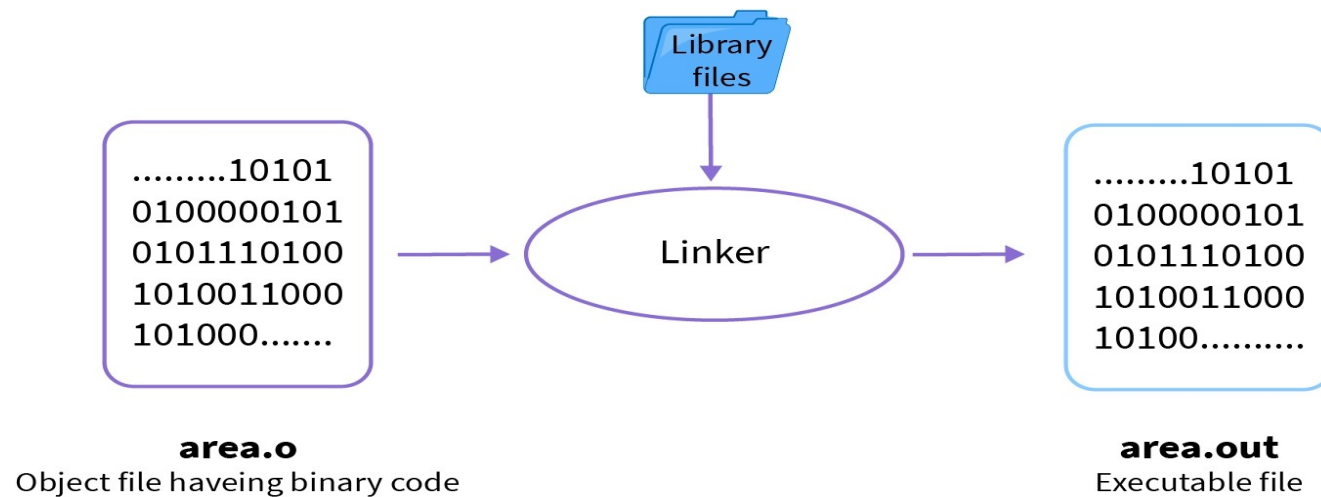
Stage 3: **Assembling**

- o The assembly code is converted into object code by using an assembler. The name of the object file generated by the assembler is the same as the source file

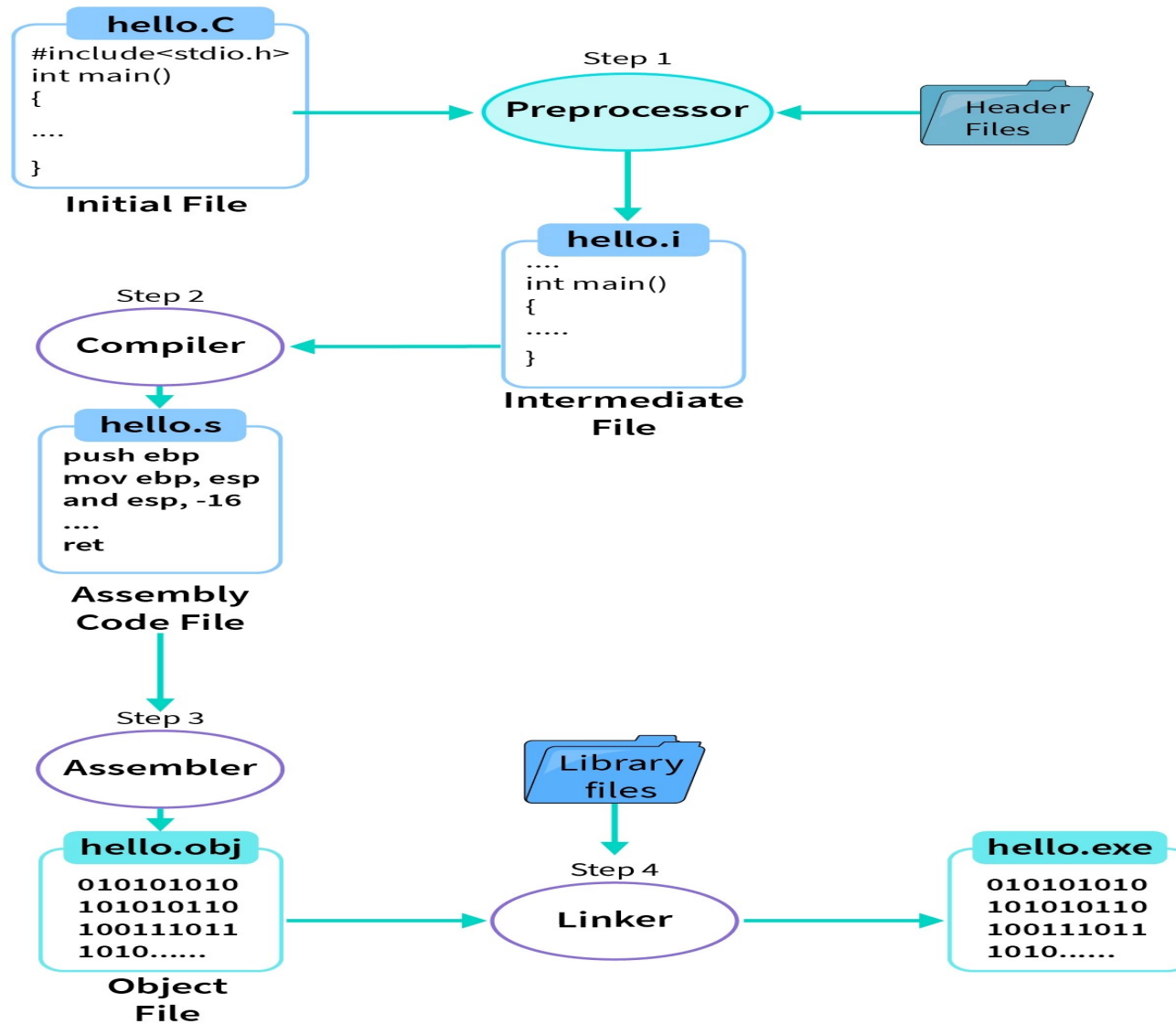


Stage 4: Linking

- o Combines the program object code with other object code to produce the executable file.
- o The other object code can come from the **Run-Time Library**, other libraries, or object files that you have created.



Over All Flow Of C Program



Thank you