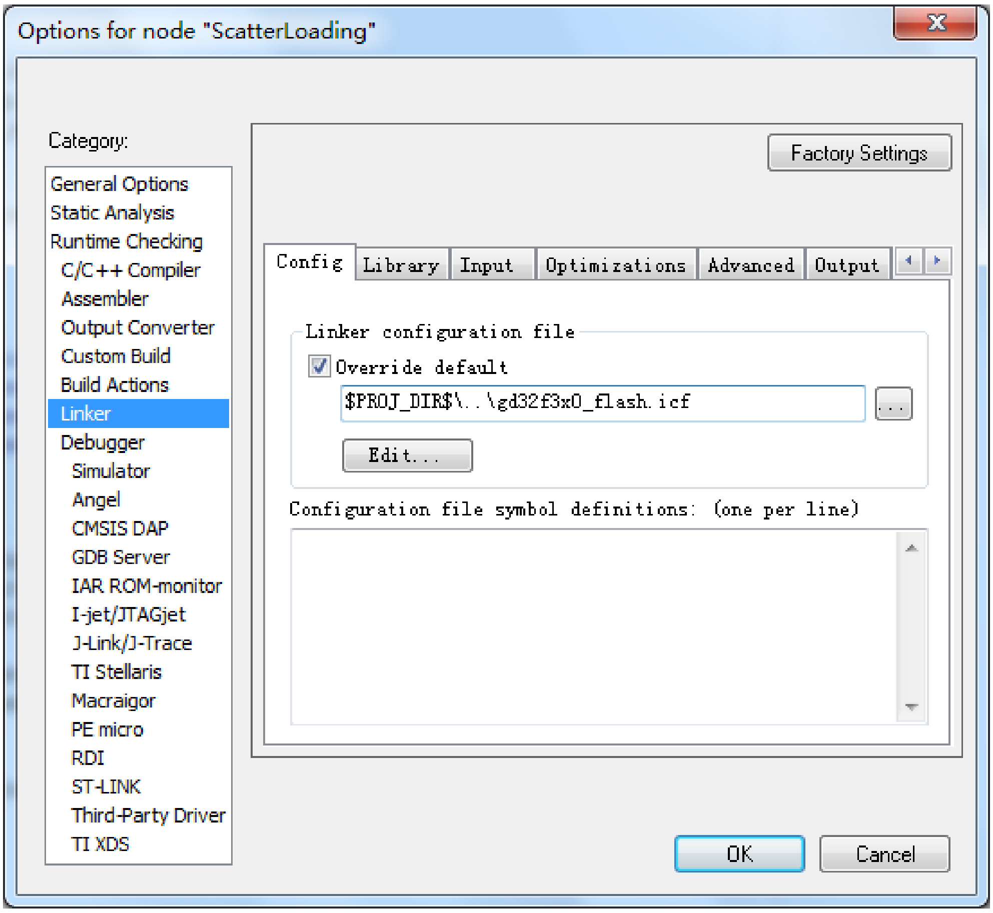
IAR Scatter Loading Instructions

1. Specify the .C file to the flash specified location

This project will load the hw_config.c file at the address 0x08002000.

1) IAR configration：

In the “linker-config” of the “Options”, select the “Override default”, and choose the .icf file in current project, as shown in figure:



Linker configuration file

☑ Override default

$PROJ_DIR$\..\gd32f3x0_flash.icf

Configuration file symbol definitions: (one per line)

In this way, the IAR compiler will link to the gd32f3x0_flash.icf file, the user should to modify this file.

2) Modify gd32f3x0_flash.icf file：

Open the “gd32f3x0_flash.icf” file in the IAR project, modify as follows:

```
/*###ICF### Section handled by ICF editor, don't touch! ****/
/*-Editor annotation file-*/
/* IcfEditorFile="$TOOLKIT_DIR$\config\ide\IcfEditor\cortex_v1_0.xml" */
/*-Specials-*/
define symbol __ICFEDIT_intvec_start__ = 0x08000000;
/*-Memory Regions-*/
```

```
define symbol __ICFEDIT_region_ROM_start__    = 0x08000000;
define symbol __ICFEDIT_region_ROM_end__      = 0x0800FFFF;

                                                define an area after 8k
                                                named as ROM1

define symbol __ICFEDIT_region_ROM1_start__    = 0x08002000;
define symbol __ICFEDIT_region_ROM1_end__     = 0x0800FFFF;
define symbol __ICFEDIT_region_RAM_start__     = 0x20000000;
define symbol __ICFEDIT_region_RAM_end__       = 0x20017FFF;
/*-Sizes-*/
define symbol __ICFEDIT_size_cstack__    = 0x400;
define symbol __ICFEDIT_size_heap__     = 0x200;
/**** End of ICF editor section. ###ICF###*/
                                           defines the starting
                                           address of ROM1

define memory mem with size = 4G;
define   region   ROM_region        =   mem:[from   __ICFEDIT_region_ROM_start__        to
__ICFEDIT_region_ROM_end__];
define   region   ROM1_region       =   mem:[from   __ICFEDIT_region_ROM1_start__       to
__ICFEDIT_region_ROM1_end__];
define   region   RAM_region        =   mem:[from   __ICFEDIT_region_RAM_start__        to
__ICFEDIT_region_RAM_end__];

define block CSTACK   with alignment = 8, size = __ICFEDIT_size_cstack__     { };
define block HEAP       with alignment = 8, size = __ICFEDIT_size_heap__     { };

initialize by copy { readwrite };
do not initialize   { section .noinit };

place at address mem:__ICFEDIT_intvec_start__ { readonly section .intvec };
place at address mem:0x08020000 { section .text   object hw_config.o };
                             // load the hw_config.c file to the 0x08002000 starting position
place at address mem:0x0800F000 { readonly section .funflash};
                           // load the specified   function to the 0x0800F000starting position

place in ROM_region     { readonly };
place in RAM_region     { readwrite,   block CSTACK, block HEAP };
```

The red part is what user can add, the other part should be the same as the original file.

2. Load the function to the flash specified location

In this project, the function delay in main.c is loaded in the starting position of 0x0800F000.

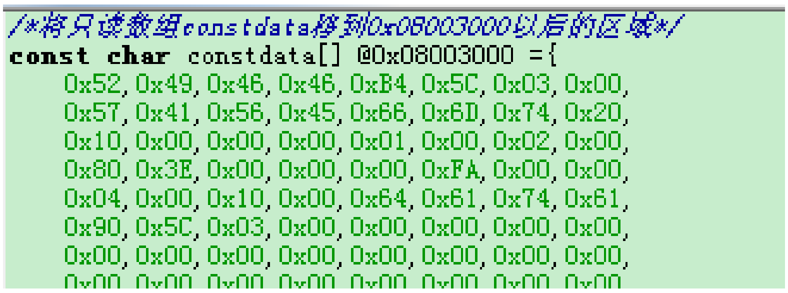
1、 Add " place at address mem:0x0800F000 { readonly section .funflash}; " in the gd32f3x0_flash.icf file

2、Add “@".funflash" ” in the definition of the function:

```
void delay(void) @".funflash"
{
   for(i=0; i<0xffff; i++);
}
```

3. Load a const array into the flash specified location

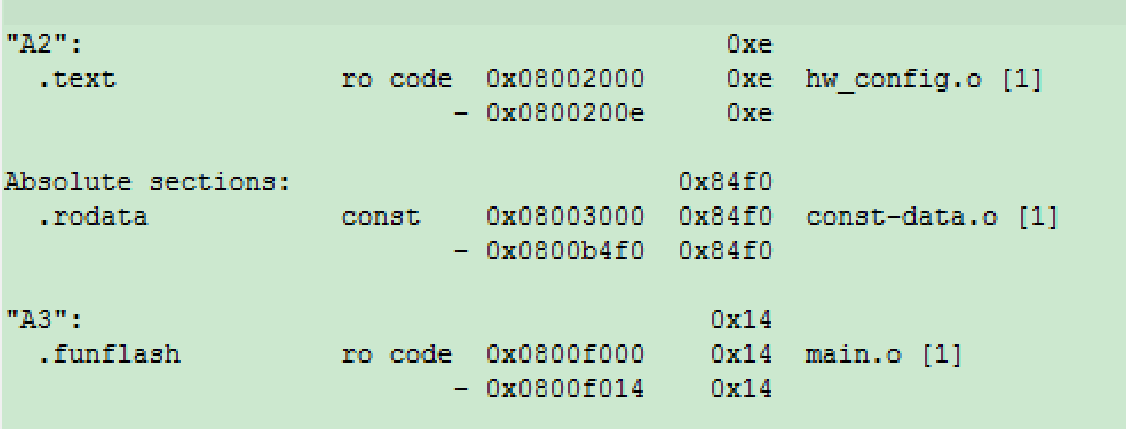
In this project, the constdata (const can not be omitted) is loaded in the starting position of 0x08003000.



```
/*将只读数组constdata移到0x08003000以后的区域*/
const char constdata[] @0x08003000 ={
    0x52,0x49,0x46,0x46,0xB4,0x5C,0x03,0x00,
    0x57,0x41,0x56,0x45,0x66,0x6D,0x74,0x20,
    0x10,0x00,0x00,0x00,0x01,0x00,0x02,0x00,
    0x80,0x3E,0x00,0x00,0x00,0xFA,0x00,0x00,
    0x04,0x00,0x10,0x00,0x64,0x61,0x74,0x61,
    0x90,0x5C,0x03,0x00,0x00,0x00,0x00,0x00,
    0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
    0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00
```

4. The result

In the project directory \Debug\List, find the ScatterLoading .map file, open, as follows:



```
"A2":                                      0xe
  .text              ro code   0x08002000  0xe   hw_config.o [1]
                             - 0x0800200e  0xe

Absolute sections:                     0x84f0
  .rodata            const     0x08003000 0x84f0  const-data.o [1]
                             - 0x0800b4f0 0x84f0

"A3":                                     0x14
  .funflash          ro code   0x0800f000 0x14   main.o [1]
                             - 0x0800f014 0x14
```